



## Catalog 1104-6

### **Enfinity™ Console Water Source Heat Pumps 1/2 to 1½ Ton**

**R-410A Models MHC Standard Range & MHW Geothermal Range**

**Unit Sizes 007-018**



*People and ideas you can trust.™*

<b>Model Nomenclature</b> .....	<b>3</b>	<b>Dimensional Data</b> .....	<b>33</b>
<b>Enfinity™ Console Water Source Heat Pumps</b> .....	<b>4</b>	Slope Top Unit – High Sill, Right Hand Piping – Unit Size 007 - 012 .....	33
Introduction .....	4	Flat Top Unit – High Sill, Left Hand Piping – Unit Size 007 - 012 .....	33
With Enfinity Water Source Heat Pumps, You Benefit From: .....	4	Slope Top Unit – Low Sill, Right Hand Piping – Unit Size 007 - 012 .....	34
<b>Design Features &amp; Options</b> .....	<b>5</b>	Flat Top Unit – Low Sill, Left Hand Piping – Unit Size 007 - 012 .....	34
Configuration .....	6	Slope Top Unit – High Sill, Right Hand Piping – Unit Size 015 - 018 .....	35
Cabinet .....	6	Flat Top Unit – High Sill, Left Hand Piping – Unit Size 015 - 018 .....	35
Chassis .....	6	Slope Top Unit – Low Sill, Right Hand Piping – Unit Size 015 - 018 .....	36
Optional Factory Installed Features .....	6	Flat Top Unit – Low Sill, Left Hand Piping – Unit Size 015 - 018 .....	36
<b>Engineering Data</b> .....	<b>7</b>	<b>Field-Installed Accessories</b> .....	<b>37</b>
AHRI/ASHRAE/ISO Performance .....	7	Unit & Wall Mounted Thermostat - Standalone .....	37
Physical Data .....	7	MicroTech III Water Source Heat Pump Room Temperature Sensors .....	39
Electrical Data .....	8	Wireless Temperature Control (T9000) .....	40
Fan Performance .....	8	Remote Control Node (RCN) .....	40
Information for Initial Start-Up .....	9	Supply and Return Water Hoses .....	40
Operating Limits .....	9	Combination Balancing and Shutoff Valves .....	41
Airflow Correction Factors .....	10	2-Way Motorized Valve .....	41
Antifreeze Correction Factors .....	10	Piping Package (Options) .....	41
<b>Controls Features &amp; Options</b> .....	<b>11</b>	Outdoor Air Dampers .....	43
MicroTech® III Unit Controller .....	12	Extended End Pocket (Option) .....	44
I/O Expansion Module .....	14	Multiple Unit Control Panel (MUCP) .....	44
MicroTech® III Unit Controller with LONWORKS or BACnet Communication Module .....	16	<b>Typical Wiring Diagrams</b> .....	<b>45</b>
MicroTech III Unit Controller with Communication Modules Features .....	16	Typical MicroTech III Unit Controller for Sizes 007-015 – 208/230/60Hz/1-Phase .....	45
<b>Applications</b> .....	<b>18</b>	Typical MicroTech III Unit Controller With Electric Heat for Size 018 208/230/60Hz/1-Phase .....	46
Water Source Heat Pump Systems .....	18	Typical MicroTech III Unit Controller with Communication Module and Wall-Mounted Room Temperature Sensor – 265/277/60Hz/1-Phase .....	47
Boiler / Tower Applications: AHRI 320 / ISO 13256-1 .....	18	<b>Engineering Guide Specifications</b> .....	<b>48</b>
Open Loop Well Water Applications: AHRI 325 / ISO 13256-1 .....	18		
Closed Loop Geothermal Applications: AHRI 330/ISO 13256-1 .....	19		
Application Considerations .....	20		
Unit Selection .....	22		
<b>Capacity Data</b> .....	<b>23</b>		
Unit Size 007 .....	23		
Unit Size 009 .....	25		
Unit Size 012 .....	27		
Unit Size 015 .....	29		
Unit Size 018 .....	31		

Category	Code Item	Code Option	Code Designation & Description ( <i>Bold-Italic = Standard</i> )
<b>Product Category</b>	<b>01</b>	<b>1</b>	W = Water Source Heat Pump
<b>Product Identifier</b>	<b>02</b>	<b>2-4</b>	MHC = R410A, Wall Mounted, Standard Range MHW = R410A, Wall Mounted, Geothermal Range
<b>Design Series (Vintage)</b>	<b>03</b>	<b>5</b>	1 = <b>A</b> Design 2 = B Design 3 = C Design 4 = D Design
<b>Nominal Capacity</b>	<b>04</b>	<b>6-8</b>	007 = 7,000 Btuh Nominal Cooling 009 = 9,000 Btuh Nominal Cooling 012 = 12,000 Btuh Nominal Cooling 015 = 15,000 Btuh Nominal Cooling 018 = 18,000 Btuh Nominal Cooling
<b>Controls</b>	<b>05</b>	<b>9</b>	B = MicroTech® III Unit Controller <b>C</b> = MicroTech III Unit Controller w/LonWorks® Communication Module D = MicroTech III Unit Controller w/BACnet® Communication Module
<b>Voltage</b>	<b>06</b>	<b>10</b>	A = 115-60-1 (Sizes 007-012 only) E = 208-230/60/1 J = 265/277-60-1
<b>Cabinet Height</b>	<b>07</b>	<b>11</b>	H = High Sill S = Low Sill
<b>Return Air</b>	<b>08</b>	<b>12</b>	B = Bottom Return (High Sill) F = Front Return (Low Sill)
<b>Discharge Air</b>	<b>09</b>	<b>13</b>	<b>T</b> = <b>Top</b>
<b>Blower Motor</b>	<b>10</b>	<b>14-15</b>	01 = Standard
<b>Cabinet Type</b>	<b>11</b>	<b>16</b>	F = Flat Top S = Slope Top
<b>Discharge Grille</b>	<b>11</b>	<b>16</b>	2 = Standard Stamped Louver 3 = Multi-directional Grille C = Chassis Only



The information in this manual supersedes and replaces previous catalogues with regards to Daikin Water Source Heat Pump products. Illustrations cover the general appearance of Daikin products at the time of publication and Daikin reserves the right to make changes in design and construction at anytime without notice.

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## Introduction

More than 30 years ago, McQuay (A member of the Daikin group) designed the first complete line of water source heat pumps for high efficiency, individually-zoned comfort control in offices, schools, assisted living facilities, manufacturing facilities and other commercial buildings. Our reputation for outstanding reliability and quiet operation has been reinforced in thousands of successful installations.

Enfinity water source heat pumps incorporate the best of our past and the best of what's new. Using feedback from building owners, consulting engineers, contractors and service engineers, we designed Enfinity products to give you maximum flexibility to design, install, operate and maintain the ideal water source heat pump system for your building project. And we incorporated non-ozone depleting R-410A refrigerant, which—along with high Energy Efficiency Ratios (EER's)—helps preserve our environment and precious energy resources.

## With Enfinity Water Source Heat Pumps, You Benefit From:

### *High efficiency that minimizes environmental impact and lowers operating costs*

- Units exceed ASHRAE Standard 90.1 minimum requirements
- Standard range or geothermal application flexibility

### *Engineered For Flexibility and Performance*

- Two cabinet sizes, each with Daikin's subtle aesthetic and small footprint design, make it easy to meet the space requirements of your new construction or replacement application.
- MicroTech® unit controller with Open Choices™ feature allows easy, low cost integration with the Building Automation System (BAS) of your choice.

### *Improved Efficiency*

- Factory-installed, unit-mounted thermostats save time and money versus installing wall-mounted thermostats.
- Wide range of factory-installed options, including electric heat, motorized valves and thermostat options help you meet more specific application requirements with minimum design or installation time and expense.

### *Easy, Low-Cost Maintenance*

- Easy access to the unit compressor (end panel), fan section and coil (front panel) and unit controls (left or right end panel).
- A easily removable blower motor allows the tangential fan wheel to remain in the housing during motor replacement.
- A hinged control box allows easy access to the piping compartment.

### *Quiet Operation*

- New Gentleflo™ fan wheel allows the fan motor to operate at lower speed for quieter operation.
- High efficiency rotary compressor mounted on a mass plate system reduces noise due to vibration.

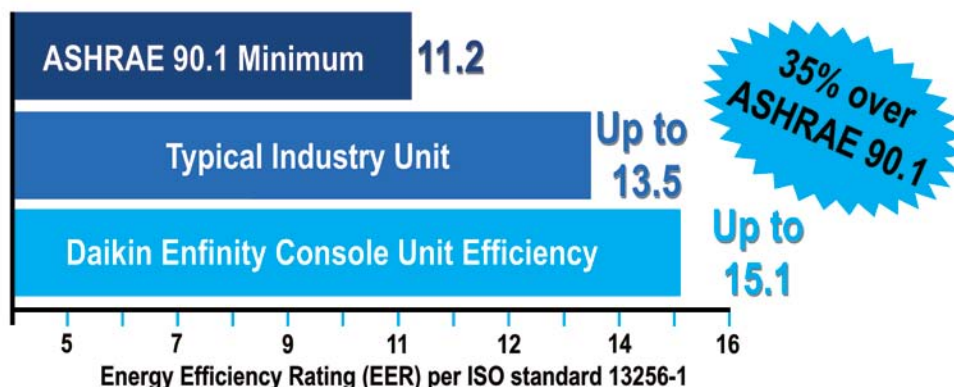
### *Superior Indoor Air Quality (IAQ)*

- Removable, non-corrosive and double-sloped polymer drain pan promotes positive condensate drainage.
- Optional closed-cell insulation prevents insulation fibers from entering the air stream.

### *R-410A Refrigerant With Zero Ozone Depletion Potential or Phase-Out Date*

- R-410A is classified as A1/A1 – lower toxicity, no flame propagation – per ASHRAE Standard 31.

**35% greater efficiency than the minimum required by ASHRAE 90.1, for units less than 17,000 Btuh per ISO Standard 13256-1 for Boiler/Tower applications.**





### 1 Cabinets

- Selectable flat top or slope top cabinet configurations with multiple grille options, including user configurable, multi-directional grilles. Individual panels- top, front and end panels are designed for easy removal and provides easy access to unit components for service and maintenance. Optional extended cabinet end pocket for high sill units, providing 11" of additional area inside the left or right end pocket for piping or a field-installed pump.

### 2 Compressor

- High efficiency rotary type, using R-410A refrigerant with zero ozone depletion potential or phase-out date.

### 3 Gentleflo™ Fan

- User selectable, multi-speed tangential fan system provides high efficiency and very quiet operation suitable for noise sensitive applications.

### 4 LED Annunciator

- LED status lights display fault conditions to provide easy troubleshooting and diagnosis. Accessed by removing the left or right end panel to the control enclosure.

### 5 Filter

- Units come standard with a 1/2" (12.7mm) thick disposable filter that is easy to access and replace without removing panels. Filter not provided with high sill, chassis only units.

### 6 Hinged Control Box

- Provides added accessibility to plumbing end compartment for easier access for service.

### 7 2-Way Motorized Valve Packages (Option)

- Factory installed or field-installed for variable pumping applications. Other valve options available upon request.

### 8 MicroTech® III Unit Controller

- Designed for flexibility, the main control board is used in standalone applications. An optional I/O expansion module can be used to control electric heat and multiple fan speeds. A separate optional LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice.

### 9 Double-Sloped Drain Pan

- Made of durable, non-corrosive polymer, promotes positive condensate drainage for superior Indoor Air Quality (IAQ). Drain Pan is easy to remove for cleaning.

### Air Dampers (Field-installed Accessory)

- Motorized or manually operated outside air dampers provide ventilation air.

### Expanded Paint Colors – Color selections that compliment any decor.





## Configuration

Console water source heat pumps are available in five cooling capacity sizes, from 1/2 through 1½ tons, (1757 to 5274 watts). Each is available in four different configurations.

Flat top units meet the traditional requirements for a rugged unit. Slope top units offer a more modern look. The high silhouette unit is 25" (635mm) high and the low silhouette unit is only 22½" (572mm) high. The overall unit dimensions are very compact; unit sizes 007 through 012 are 46" (1168mm) long and sizes 015 through 018 are 54" (1372mm) long. All units are a constant 10¾" (273mm) deep for minimum floor space and a consistent "look" for all unit sizes.

All units incorporate a slide-out chassis concept which allows it to be installed easily or removed and replaced quickly when service is required to minimize downtime for the space the unit serves. The cabinet is made up of individual panels, each of which can be easily removed to expose the chassis for field hook-up of water and electrical connections. The chassis easily slides off the subbase for service or changeout.

## Cabinet

All cabinets are painted with optional Antique Ivory or Cupola White baked enamel finish for an aesthetically pleasing appearance. The discharge grilles and subbase can be Oxford Brown or match the cabinetry on flat top or slope top units.

The shallow 22° slope top cabinet is constructed of 18-gauge steel. The top and side corners and grille are constructed of tough, impact-resistant ABS polycarbonate. The grille extends to the front and sides for a smooth look as well as providing a curtain stop in back. The discharge grilles can be rotated to direct the air in an 11° angle from the vertical and can be reversed for a 33° discharge angle. The control door has a finger slot and simply lifts up for access to the thermostat. Overall, the slope top unit allows minimal airflow interference from curtains and objects resting on the cabinet, while at the same time providing a rugged, aesthetically pleasing look.

The flat top cabinet is constructed of 18-gauge steel with grille options that meet basic needs with its rugged construction and its 11° discharge angle.

## Chassis

The chassis houses the fan section, refrigerant circuit and controls. The air enters through the bottom of the chassis, through the subbase or through the front panel in low sill units.

The refrigeration system includes a rotary compressor, reversing valve, coaxial heat exchanger, capillary tubes, air coil, high and low side access valves, and safety controls. Access to the compressor is through a removable end panel. The compressor is isolated from the unit with external vibration mounts, mass plate/viscoelastic damp-

ening material and the compartment is totally insulated to make the quietest console unit on the market. Safety controls include low temperature (freezestat) and refrigerant high pressure switches. The control box is hinged for easy access to all of the controls. The MicroTech III unit controller offers both standalone or communicating (LonWorks or BACnet) control options.

Each uses a printed circuit board for clean wiring and a low voltage control circuit with a 50 VA transformer. See "Controls" section for more detailed information. Main power is made to a chassis-mounted 2" x 4" (51mm x 102mm) junction box.

The fan section employs Daikin's Gentleflo tangential system fan and efficient, two-speed PSC motor for selectable airflow and/or noise level. Access to the fan wheel is made through the top panel. The motor is secured to the chassis with three screws for easy service.

Water piping connections are 5/8" O.D. copper tubing and terminate away from the side of the chassis in the piping compartment for easy access. Unique left- and right-hand piping (includes condensate and electrical) locations are available. The 3/4" (19mm) I.D. flexible clear vinyl condensate drain tube is internally trapped and extends 14" (356mm) into the piping compartment for easy connection. Piping (electrical and condensate also) can enter through the back wall or through the floor within the subbase. The chassis allows for a piping compartment between the chassis and the cabinet.

## Optional Factory Installed Features

Boilerless system electric heat eliminates the need for a boiler in the heat pump water loop. An electric heater is added to the discharge side of the fan scroll. If the entering water temperature falls to 58°F (15°C) the thermostat locks out compressor operation. On a call for heat, the electric heater is energized. When the entering water temperature raises, the unit will resume compressor operation on a call for heat. An emergency electric heat override plug allows for electric heat, if the compressor (mechanical) heat should fail. Each unit has various heater sizes to select from. Not available on 115 volt units. Not CSA listed.

## Optional Extended End Pockets (High Sill Units)

Optional extended cabinet end pocket for high sill units, provides 11" of additional area inside the left or right end pocket for piping or a field-installed pump.

## Optional Multi-Directional Grilles

Selectable plastic Multi-Directional Grilles can rotate 90, 180 or 270 degrees for added control of discharge air direction.

## AHRI/ASHRAE/ISO Performance

Table 1: Performance data

Unit Size	GPM	CFM	Cooling			Heating		
			Btuh/hr	Watts	EER	Btuh/hr	Watts	COP
Water Loop								
007	1.93	273	7718	518	14.9	9109	526	5.1
009	2.43	347	9170	651	14.1	11000	686	4.7
012	2.90	275	11600	860	14.9	13900	894	4.6
015	3.70	559	14500	964	15.1	18200	1031	5.2
018	4.61	421	16400	1223	13.4	20900	1379	4.4
Ground Water								
007	1.93	273	9143	362	25.3	7432	523	4.2
009	2.43	347	11000	465	23.8	9060	657	4.0
012	2.90	275	13500	614	24.3	11600	841	4.1
015	3.70	559	17600	716	24.6	14400	987	4.3
018	4.61	421	19000	928	20.4	17400	1277	4.0
Ground Loop								
007	1.93	273	8365	474	17.7	5605	495	3.3
009	2.43	347	9730	602	16.2	7030	627	3.3
012	2.90	275	12300	774	17.5	9000	780	3.4
015	3.70	559	15400	885	17.3	10900	940	3.4
018	4.61	421	17300	1132	15.3	13700	1189	3.4

**Note:** Rated in accordance with AHRI/ASHRAE/ISO Standard 13256-1.

**Legend:** Btuh = British Thermal Units per Hour

CFM = Airflow Rate, Cubic Feet per Minute

COP = Coefficient of Performance

EER = Energy Efficiency Ratio

GPM = Gallons per Minute

**Water Loop:** 1. Cooling capacity is based on 80.6°F db, 66.2°F wb (27/19°C) EAT and 86°F (30°C) EWT.

2. Heating capacity is based on 68°F db, 59.0°F wb (20/15°C) EAT and 68°F (20°C) EWT.

**Ground Water:** 1. Cooling capacity is based on 80.6°F db, 66.2°F wb (27/19°C) EAT and 59°F (15°C) EWT.

2. Heating capacity is based on 68°F db, 59.0°F wb (20/15°C) EAT and 50°F (10°C) EWT.

**Ground Loop:** 1. Cooling capacity is based on 80.6°F db, 66.2°F wb (27/19°C) EAT and 77°F (25°C).

2. Heating capacity is based on 68°F db, 59.0°F wb (20/15°C) EAT and 32°F (0°C).

## Physical Data

Table 2: Physical data

Unit Size		007	009	012	015	018
Fan Wheel - D x W (in.)		4-3/8 × 27-1/4			4-3/8 × 35-3/8	
Fan Motor (hp)		1/30			1/18	
Coil Face Area (ft.2)		1.67			2.22	
Coil Rows		2	2	3	2	3
Refrigerant Charge (oz.)		18.2	19.2	22.0	29.9	32.0
Filter (Qty.) Size (in.)	Low Sill	(1) 23-3/4w x 8-3/4d			(1) 31-3/4w x 8-3/4d	
	High Sill	(1) 29-1/4w x 9-3/4d			(1) 37-1/4w x 9-3/4d	
Water Connections, Sweat Connections (in.)		5/8 O.D.				
Condensate Connection, I.D. (In.)		3/4				
Weight, Operating (lbs.)		138	144	146	166	171
Weight, Shipping (lbs.)		158	164	166	196	201

## Electrical Data

**Table 3: Standard Static Motor**

Unit Size	Voltage/Hz/ Phase	Compressor		Fan Motor FLA	Total Unit FLA	Minimum Voltage	Minimum Circuit Amps	Maximum Fuse or HACR Breaker Size
		RLA	LRA					
007	115-60-1	6.1	29	0.50	6.60	104	8.1	15.0
	208-230-60-1	3.0	15	0.25	3.25	187	4.0	15.0
	265/277-60-1	2.7	11	0.23	2.93	239	3.6	15.0
009	115-60-1	8.0	50	0.50	8.50	104	10.5	15.0
	208-230-60-1	3.7	22	0.25	4.0	187	4.9	15.0
	265/277-60-1	3.5	22	0.23	3.7	239	4.6	15.0
012	115-60-1	9.5	50	0.50	10.0	104	12.4	20.0
	208-230-60-1	4.7	25	0.25	5.0	187	6.1	15.0
	265/277-60-1	4.2	22	0.23	4.4	239	5.5	15.0
015	208-230-60-1	5.6	29	0.33	5.9	187	7.3	15.0
	265/277-60-1	5.0	28	0.33	5.3	239	6.6	15.0
019	208-230-60-1	7.4	33	0.33	7.7	187	9.6	15.0
	265/277-60-1	6.0	28	0.33	6.3	239	7.8	15.0

**Table 4: Standard Static Motor and Optional Electric Heater (Heat Pump Not Running)**

Unit Size	Voltage/Hz/Phase	Electric Heater				Fan Motor FLA	Total Unit FLA		Minimum Voltage	*Minimum Circuit Amps		*Maximum Fuse Size	
		*kW		*FLA									
007	115-60-1	—		—		—	—		—	—		—	
	208/230-60-1	2.01	2.67	9.7	11.1	0.25	9.9	11.4	187	12.4	14.2	15.0	15.0
	277-60-1	3.57		12.9		0.23	13.1		239	16.4		20.0	
009	115-60-1	—		—		—	—		—	—		—	
	208/230-60-1	2.01	2.67	9.7	11.1	0.25	9.9	11.4	187	12.4	14.2	15.0	15.0
	277-60-1	3.57		12.9		0.23	13.1		239	16.4		20.0	
012	115-60-1	—		—		—	—		—	—		—	
	208/230-60-1	2.01	2.67	9.7	11.1	0.25	9.9	11.4	187	12.4	14.2	15.0	15.0
	277-60-1	3.57		12.9		0.23	13.1		239	16.4		20.0	
015	208/230-60-1	2.74	3.65	13.2	15.2	0.3	13.5	15.5	187	16.8	19.4	20.0	20.0
	277-60-1	4.86		17.5		0.3	17.8		239	22.3		25.0	
018	208/230-60-1	2.74	3.65	13.2	15.2	0.33	13.5	15.5	187	16.9	19.4	20.0	20.0
	277-60-1	4.86		17.5		0.33	17.9		239	22.3		25.0	

Note: \*kW, FLA, MCA and Max Fuse calculated at 208, 240 and 277 volt as required by UL 1995.

## Fan Performance

**Table 5: Airflow Vs. CFM - Standard Static Motor**

Unit Size	Fan Speed	Cooling		Heating	
		SCFM	L/s	SCFM	L/s
007	Low	218	103	224	106
	High	273	129	294	139
009	Low	258	122	264	124
	High	347	164	355	167
012	Low	243	115	256	121
	High	275	130	300	142
015	Low	340	160	376	177
	High	559	265	619	292
018	Low	380	179	392	185
	High	421	199	450	212



## Information for Initial Start-Up

### Standard Range Units:

Units are designed to start in an ambient of 50°F (10°C), with entering air at 50°F (10°C), with entering water at 70°F (21°C), with both air and water at the flow rates used in the ISO 13256-1 rating test, for initial start-up in winter.

**Note:** *This is not a normal or continuous operating condition. It is assumed that such a start-up is for the purpose of bringing the building space up to occupancy temperature.*

### Geothermal Range Units:

Geothermal range heat pump conditioners are designed to start in an ambient of 40°F (5°C), with entering air at 40°F (5°C), with entering water at 40°F (5°C), with both air and water at the flow rates used in the ISO 13256-1 rating test, for initial start-up in winter.

**Note:** *This is not a normal or continuous operating condition. It is assumed that such a start-up is for the purpose of bringing the building space up to occupancy temperature.*

## Operating Limits

### Air Limits

Table 6: Air limits in °F (°C)

Air Limits	Standard Range Units		Geothermal Range Units	
	Cooling	Heating	Cooling	Heating
Minimum Ambient Air	50°F (10°C)	50°F (10°C)	40°F (4°C)	40°F (4°C)
Rated Ambient	80°F (27°C)	70°F (21°C)	80°F (27°C)	70°F (21°C)
Maximum Ambient Air	100°F (38°C)	85°F (29°C)	100°F (38°C)	85°F (29°C)
Minimum Entering Air	50°F (10°C)	50°F (10°C)	50°F (10°C)	40°F (4°C)
Rated Entering Air	80/67°F (27°/19°C)	70°F (21°C)	80/67°F (27°/19°C)	70°F (21°C)
Maximum Entering Air	100/83°F (38/28°C)	80°F (27°C)	100/83°F (38/28°C)	80°F (27°C)

### Water Limits

Table 7: Water limits

Water Limits	Standard Range Units		Geothermal Range Units	
	Cooling	Heating	Cooling	Heating
Minimum Entering Water	55°F (13°C)	55°F (13°C)	30°F (-1°C)	20°F (-6°C)
Normal Entering Water	85°F (29°C)	70°F (21°C)	77°F (25°C)	40°F (4°C)
Maximum Entering Water	110°F (43°C)	90°F (32°C)	110°F (43°C)	90°F (32°C)
Minimum GPM/Ton	1.5			
Nominal GPM/Ton	3.0			
Maximum GPM/Ton	4.0			

**Notes:** 1. Maximum and minimum values may not be combined. If one value is at maximum or minimum, the other two conditions may not exceed the normal condition for standard units. Extended range units may combine any two maximum conditions, but not more than two, with all other conditions being normal conditions.  
2. This is not a normal or continuous operating condition. It is assumed that such a start-up is for the purpose of bringing the building space up to occupancy temperature.

### Environment

This equipment is designed for indoor installation only. Sheltered locations such as attics, garages, etc., generally will not provide sufficient protection against extremes in temperature and/or humidity, and equipment performance, reliability, and service life may be adversely affected.

### Power Supply

A voltage variation of +/-10% of nameplate voltage is acceptable.

## Airflow Correction Factors

**Table 8: Airflow Correction Factors**

	Percent of Nominal Airflow						
	85	90	95	100	105	110	115
Total Cooling Capacity	0.972	0.982	0.993	1.00	1.007	1.010	1.013
Sensible Cooling Capacity	0.926	0.948	0.974	1.00	1.027	1.055	1.066
kW - Cooling	0.977	0.984	0.993	1.00	1.011	1.018	1.028
Total Heat of Rejection	0.975	0.983	0.991	1.00	1.008	1.015	1.018
Total Heating Capacity	0.967	0.978	0.990	1.00	1.009	1.017	1.024
kW - Heating	1.009	1.006	1.003	1.00	0.997	0.995	0.993
Total Heat of Absorption	0.967	0.976	0.989	1.00	1.010	1.019	1.025

## Antifreeze Correction Factors

**Table 9: Ethylene Glycol**

	10%	20%	30%	40%	50%
Cooling Capacity	0.9950	0.9920	0.9870	0.9830	0.9790
Heating Capacity	0.9910	0.9820	0.9770	0.9690	0.9610
Pressure Drop	1.0700	1.1300	1.1800	1.2600	1.2800

**Table 10: Propylene Glycol**

	10%	20%	30%	40%	50%
Cooling Capacity	0.9900	0.9800	0.9700	0.9600	0.9500
Heating Capacity	0.9870	0.9750	0.9620	0.9420	0.9300
Pressure Drop	1.0700	1.1500	1.2500	1.3700	1.4200

**Table 11: Methanol**

	10%	20%	30%	40%	50%
Cooling Capacity	0.9980	0.9720	—	—	—
Heating Capacity	0.9950	0.9700	—	—	—
Pressure Drop	1.0230	1.0570	—	—	—

**Table 12: Ethanol**

	10%	20%	30%	40%	50%
Cooling Capacity	0.9910	0.9510	—	—	—
Heating Capacity	0.9950	0.9600	—	—	—
Pressure Drop	1.0350	0.9600	—	—	—

## Control Choices and Added Functionality





The control box is accessible through the left or right end corner panel. It houses the major operating electrical controls including the MicroTech® III unit controller, transformer, compressor relay and fan relay. Each component is accessible for service or replacement.

### Four unique control choices are offered with the MicroTech III unit controller:

- Standalone operation using a MicroTech III unit controller
- MicroTech III unit controller with I/O Expansion module
- MicroTech III unit controller with a LonWorks® communication module
- MicroTech III unit controller with a BACnet® communication module

Each option features direct quick-connect wiring to all unit-controlled components for “clean” wiring inside the control box.

**Table 13: Control Options**

Control	Description	Application	Protocol
<b>MicroTech III</b>  (Standalone) Unit Controller.	The MicroTech III unit controller is a standalone microprocessor-based control board conveniently located in the unit control box for accessibility. The board is designed to provide standalone control of a Water Source Heat Pump using a wall thermostat or a wall mounted temperature sensor. Each unit controller is factory programmed, wired, and tested.	Each unit controller is factory programmed, wired, and tested for complete control of single zone, standalone operation of your Daikin Water Source Heat Pump.	Unit-mounted or wall-mounted thermostat
<b>I/O Expansion Module</b> 	The I/O Expansion Module is an extension of the Microtech III unit controller and provides additional functionality to the Microtech III control system. It is required on all units with an LED annunciator and provides operation of the boilerless electric heat feature.	Allows for: <ul style="list-style-type: none"> <li>• Monitoring of entering water temperature for boilerless electric heat control.</li> <li>• Outputs for optional electric heat</li> </ul>	Unit-mounted or wall-mounted thermostat
<b>LONWORKS</b>  Communication Module	The MicroTech III unit controller can accept a plug-in LONWORKS communication module to provide network communications and added functionality to easily integrate with an existing BAS. The communication module can be factory- or field-installed and is tested with all logic required to monitor and control the unit.	LONTALK application protocol is designed for units that are integrated into a LONWORKS communication network for centralized scheduling and management of multiple heat pumps.	LONMARK 3.4 Certified
<b>BACnet</b>  Communication Module	The MicroTech III unit controller can accept a plug-in BACnet communication module to provide network communications and added functionality to easily integrate with an existing BAS. The communication module can be factory- or field-installed and is tested with all logic required to monitor and control the unit.	Designed to be linked with a centralized building automation system (BAS) through a BACnet communications network for centralized scheduling and management of multiple heat pumps.	BACnet MS/TP

## MicroTech® III Unit Controller

The MicroTech III Unit Controller is a microprocessor-based control board conveniently located in the unit control box for easy access through a removable access panel. The standalone unit controller is a hard wired interface and provides all the necessary field connections. The board can be wired for 24-volt AC output to the wall thermostat by using terminals R & C. An LED annunciator is located on the front corner of the unit chassis to quickly check the operating status of the unit.

### MicroTech III Operating Features

Assumes cycle fan operation-not continuous fan operation:

- **Start-up** – The unit will not operate until all the inputs and safety controls are checked for normal conditions.
- **Cooling mode** – On a call for cooling, the compressor and fan will start after the various control timers have expired. If the reversing valve output is energized, the reversing valve output will be de-energized 5 seconds after the compressor has been energized. When the load is satisfied, the compressor and fan shut off.
- **Heating Mode** – On a call for heating, the compressor and fan start after the various control timers have expired. If the reversing valve output is de-energized, the reversing valve output will be energized 5 seconds after the compressor has been energized. When the load is satisfied, the compressor and fan shut off. The reversing valve remains energized.
- **Short Cycle Protection & Random Start** – After power cycle or deactivation of certain alarms, or when leaving the unoccupied mode, a new random compressor start-delay time between 300 and 360 seconds is generated. The random start timer prevents compressors in different units from starting simultaneously. Compressor minimum OFF 360 sec) and compressor minimum ON (180 sec) timers prevent compressor short cycling.
- **Unoccupied Mode** – A simple “grounded” signal between terminals U and C (no power source required), puts the unit into the unoccupied mode for night setback operation.
- **Override Mode** – A switch on the deluxe automatic changeover thermostat can be activated during the unoccupied mode to put the unit back into the occupied mode for two hours for after-hours heating or cooling.
- **Motorized Valve/Pump Restart** – The IV/PR (H8) terminals on the The MicroTech III unit controller are used to energize (open) a motorized valve or start a water pump to get water circulating prior to starting the compressor on call for heating or cooling. The IV/PR (H8) terminal may be “daisy chained” between 200 units.
- **Brownout Protection** – The MicroTech III unit controller measures the input voltage and will suspend compressor and fan operation if the voltage falls below 80% of the unit nameplate rated value. A unique LED status is generated and an output is available to a “fault” LED at the thermostat.
- **Unit Shutdown** – A simple grounded signal puts the unit into the shutdown mode. Compressor and fan operations are suspended. A unique LED status is generated and an output signal is made available for connection to a “fault” LED at the thermostat.
- **Condensate Overflow Protection** – The MicroTech III unit controller incorporates a liquid sensor at the top of the drain pan. Upon sensing water, cooling operation is suspended and an LED status is generated.
- **Remote Reset of Automatic Lockouts** – The Remote Reset feature provides the means to remotely reset some lockouts generated by high-pressure and/or low-temperature faults. When the MicroTech III unit controller is locked out due to one of these faults, and the cause of the fault condition has been cleared, energizing the O-terminal for 11 seconds or more forces the MicroTech III unit controller to clear the lockout. Cycling unit power also clears a lockout if the conditions causing the fault have been alleviated.
- **Intelligent Alarm Reset** – The Intelligent Reset feature helps to minimize nuisance trips of automatic lockouts caused by low-temperature faults. This feature clears faults the first two times they occur within a 24-hour period and triggers an automatic lockout on the 3rd fault. The retry count is reset to zero every 24 hours.
- **Equipment Protection Control** – The MicroTech III unit controller receives separate input signals from the refrigerant high-pressure switch and the low suction line temperature sensor. In a high-pressure situation, compressor operation is suspended. In a low temperature situation, the unit goes into a defrost cycle where the unit is put into cooling operation for 60 seconds until the coaxial heat exchanger is free of ice. Each switch generates its own unique LED status and output is available to a “fault” LED at the thermostat if either situation exists.

**Note:** Most unit fault conditions are the result of operating the equipment outside the unit specifications.any of the L1 terminals.

**Table 14: MicroTech III Controller Configuration Jumper Settings**

Baseboard Description	Jumper(s)	Jumper Setting	Function
Normal / Test Mode	JP1	Open	Normal Operation
		Shorted	Service / Test Mode
Fan Operation	JP2	Open	Continuous Fan Operation (On), when not operating in the unoccupied mode
		Shorted	Cycling Fan Operation (Auto)
Loop Fluid	JP3 (see warning)	Open	Water freeze protection (factory default setting)
		Shorted	Systems with anti-freeze protection
Alarm "A" Terminal Output Polarity	JP4	Open	Fault de-energizes alarm output to 0VAC.
		Shorted	Fault energizes alarm output to 24VAC.
Room Sensor Setpoint Potentiometer Range	JP5	Open	Short Range: -3 to +3°F (-1.67 to +1.67°C)
		Shorted	Long Range: 55 to 95°F (12.78 to 35°C)
Thermostat / Room Sensor	JP6	Open	Thermostat Control
		Shorted	Room Sensor Control
Not Used	JP7	Open	—
Not Used	JP8	Open	—

### **WARNING**

Proper antifreeze/water solution is required to minimize the potential of fluid freeze-up. Jumper JP3 is factory set for water freeze protection with the jumper open. Operation with anti-freeze protection requires JP3 to be field configured for the jumper closed. If unit is employing a fresh water system (no anti-freeze protection), it is extremely important that JP3 jumper setting remains in the open position (factory default setting) in order to shut down the unit at the appropriate water temperature to protect your heat pump from freezing. Failure to do so can result in unit damage and fluid leaks."

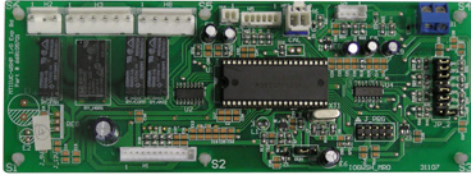
**Table 15: MicroTech III Controller Status LED's**

Description	Type*	Yellow	Green	Red
Emergency Shutdown	Mode	OFF	Flash	OFF
Low Voltage Brownout	Fault	OFF	Flash	OFF
High Pressure (HP1)	Fault	OFF	OFF	Flash
Low Pressure (LP1)	Fault	OFF	OFF	ON
Low Suction Temp (LT1) Sensor Fail	Fault	Flash	Flash	ON
Low Suction Temp (LT1)	Fault	Flash	OFF	OFF
Room Temp Sensor Fail (with Room Sensor Control Only)	Fault	Flash	Flash	ON
Condensate Overflow (Cooling & Dehumidification Modes Only)	Fault	ON	OFF	OFF
Low Entering Water Temp (Heating Compressor Inhibit; No Display with Boilerless EH)	Fault	Flash	OFF	Flash
Serial EEPROM Corrupted	Fault	ON	ON	ON
Service Test Mode Enabled	Mode	Flash	Flash	Flash
Unoccupied Mode	Mode	ON	ON	OFF
Occupied, Bypass, Standby, or Tenant Override Modes	Mode	OFF	ON	OFF

**Note:** \* Mode / Faults are listed in order of priority.



## I/O Expansion Module

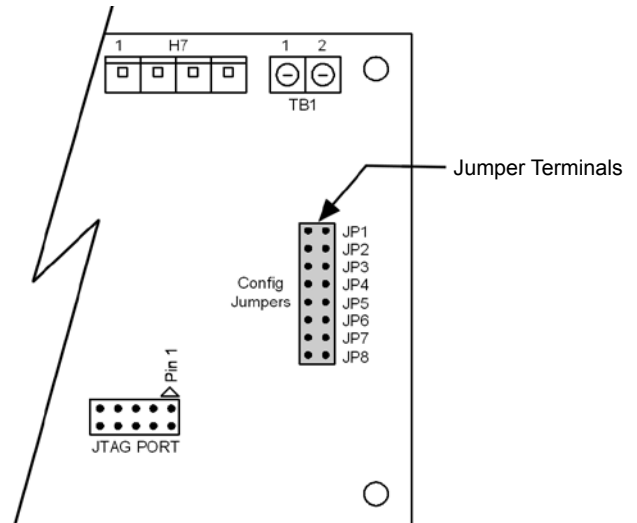


The I/O Expansion Module is a factory installed option. It is an extension of the MicroTech III unit controller and provides extra functionality.

**The I/O Expansion Module has 2 main purposes:**

- The I/O Expansion Module has outputs to control electric heat on a standard Water Source Heat Pump.
- The I/O Expansion Module has an independent LED annunciator to identify operational fault conditions for the electric heater.

**Figure 1: I/O Expansion Module Configuration Jumper Terminals**



## Features

### Standard Heat Pumps / Single Circuit Units

- Monitors entering water temperature for boilerless electric heat control

**Table 16: I/O Expansion Module Jumper Settings**

I/O Expansion Description	Jumper(s)	Jumper Setting		Model
Compressor Options	JP1	JP1	Open	Single Compressor Model (factory default setting)
		JP1	Shorted	Dual Compressor Model
Hot Gas/Water Reheat (HGR) Dehumidification	JP2	JP2	Open	None (default)
		JP2	Shorted	Hot Gas / Water Reheat (HGR)
Secondary Heating Options	JP3 & JP4	JP3	Open	None
		JP4	Open	
		JP3	Shorted	Supplemental Electric Heat
		JP4	Open	
		JP3	Open	Boilerless Electric Heat
		JP4	Shorted	
Fan Speed Selection	JP5 & JP6	JP5	Open	Single Speed Fan (PSC motor)
		JP6	Open	
		JP5	Shorted	Two-Speed Fan (ECM motor)
		JP6	Open	
		JP5	Open	Three-Speed Fan*
		JP6	Shorted	
Not Used	JP7	JP7	Open	—
Lead Compressor Option	JP8	JP8	Open	Compressor #1 is Lead (factory default setting)
		JP8	Shorted	Compressor #2 is Lead (Valid for Dual Compressor Models Only)

\* Available with secondary heating options in addition to ECM motor.

**Table 17: I/O Expansion Module LED & Fault Outputs**

Description	Type	Yellow	Green	Red
Invalid Jumper Configuration	Fault	Flash	Flash	OFF
Baseboard Communication Fail	Fault	OFF	Flash	Flash
Entering Water Temp Sensor Fail (with Boilerless Electric Heating)	Fault	Flash	Flash	ON
Service Test Mode Enabled	Mode	Flash	Flash	Flash
Unoccupied Mode	Mode	ON	ON	OFF
Occupied, Bypass, Standby, or Tenant Override Modes	Mode	OFF	ON	OFF

**Note:** Mode / Faults are listed in order of priority.  
I/O Expansion module supplied with Boilerless and Supplemental Electric Heat options.

## MicroTech® III Unit Controller with LONWORKS or BACnet Communication Module

Each Daikin Console Water Source Heat Pump can be equipped with a LONWORKS or BACnet communication module. The LONWORKS module is LONMARK 3.4 certified and designed to communicate over a LonWorks communications network to a Building Automation System (BAS). The BACnet module is designed to communicate over a BACnet MS/TP communications network to a building automation system. Both controllers are microprocessor-based and can be factory or field-installed.

The control modules are programmed and tested with all the logic required to monitor and control the unit. Optional wall sensors may be used with the communication modules to provide limited local control of the Console Water Source Heat Pump. The MicroTech III unit controller monitors water and air temperatures and passes information to the communication module. The module communicates with the BAS, to provide network control of the Water Source Heat Pump.

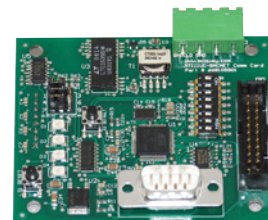
### MicroTech III LONWORKS Communication Module

The LONWORKS communication module is designed for units that are integrated into a LONWORKS communication network for centralized scheduling and management of multiple heat pumps.



### MicroTech III BACnet Communication Module

Designed to be linked with a centralized building automation system (BAS) through a BACnet communications network for centralized scheduling and management of multiple heat pumps.



### MicroTech III Unit Controller with Communication Modules Features

The MicroTech III Unit Controller with LONWORKS or BACnet Communication Module orchestrates the following unit operations:

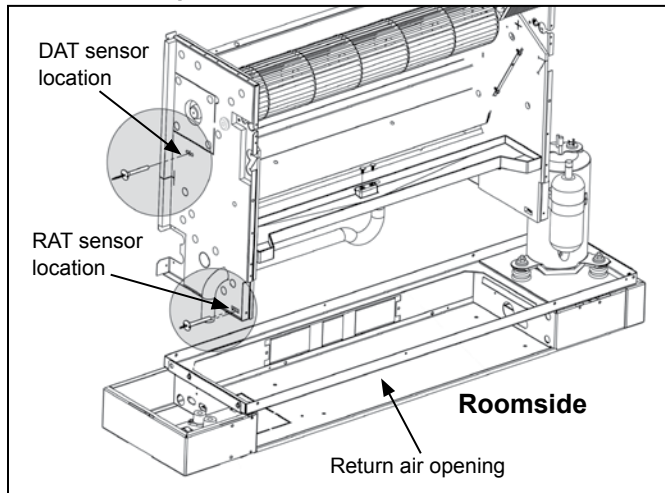
- Enable heating and cooling to maintain space temperature setpoint based on a room sensor setting
- Enable fan and compressor operation
- Monitors all equipment protection controls
- Monitors room and discharge air temperatures
- Monitors leaving water temperature
- Relays status of all vital unit functions

An on-board status LED indicates the status of the MicroTech III LONWORKS or BACnet module.

#### *The MicroTech III unit controller includes:*

- A unit-mounted return air sensor (Factory installed)
- A unit-mounted discharge air sensor (Factory installed)
- A leaving water temperature sensor (Factory installed)

**Figure 2: Discharge Air Temperature Sensor (DAT) & Return Air Temperature (RAT) sensor locations**



**Note:** Refer to [IM 956-x](#) for (DAT), (RAT) and (LWT) Leaving Water Temperature sensor details

The communication modules provide network access to setpoints for operational control

**Available wall sensors include:**

- Room sensor
- Room sensor with LED status and tenant override button
- Room temperature sensor with LED status, timed-override button, and  $\pm 3^{\circ}\text{F}$  setpoint adjustment
- Room temperature sensor with LED status, timed-override button,  $55^{\circ}$  to  $95^{\circ}\text{F}$  setpoint adjustment

## Water Source Heat Pump Systems

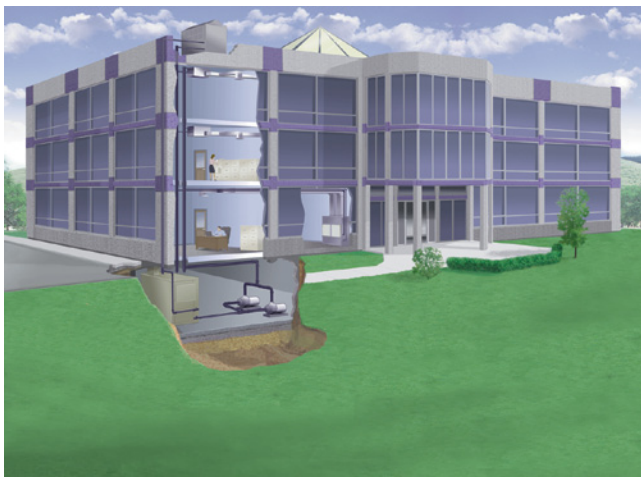
Water source heat pump systems are one of the most efficient, environmentally friendly systems available for heating and cooling buildings. High-efficiency, self contained units (sizes 7,000 btuh to 420,000 btuh) can be placed in virtually any location within a building. Each unit responds only to the heating or cooling load of the individual zone it serves. This permits an excellent comfort level for occupants, better control of energy use for building owners and lower seasonal operating costs. The Air-Conditioning Refrigeration Institute (ARI) and the International Standards Organization (ISO) publish standards so that water source heat pumps are rated for specific applications. The ARI/ISO loop options shown in this catalog are typical water source heat pump loop choices available in today's market. These systems offer benefits ranging from low cost installation to the highest energy efficiency available in the market today.

### Boiler / Tower Applications: AHRI 320 / ISO 13256-1

A "Boiler/Tower" application uses a simple two-pipe water circulating system that adds heat, removes heat or transfers rejected heat to other units throughout the building. The water temperature for heating is generally maintained between 65°F – 70°F and is usually provided by a natural gas or electric boiler located in a mechanical room. The condensing water temperature, during cooling months, is maintained between 85°F and 95°F and requires the use of a cooling tower to dissipate waste heat. Cooling towers can be located on the roof, or inside or adjacent to the building. This application can be the lowest cost of the loop options available.

Note: ASHRAE 90.1 standards require that circulating pumps over 10 HP will require use of "variable frequency drive" equipment and pipe insulation to be used whenever water temperatures are below 60 degrees and above 105 degrees. See ASHRAE 90.1 Standards for details.

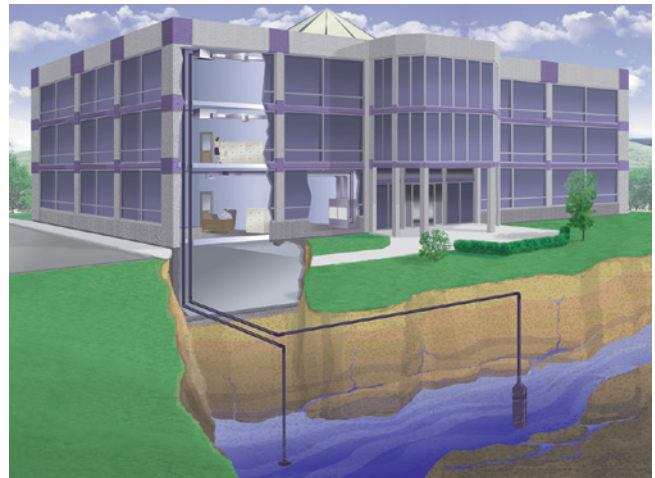
**Figure 3: Boiler/Tower Application**



## Open Loop Well Water Applications: AHRI 325 / ISO 13256-1

"Open Loop" well water systems use ground water to remove or add heat to the interior water loop. The key benefit of an open loop system is the constant water temperature, usually 50°F to 60°F, which provides efficient operation at a low first cost. Most commercial designers incorporate a heat exchanger to isolate the building loop from the well water. Using heat exchangers can reduce maintenance issues while still allowing the transfer of heat from unit to unit as with the "Boiler/Tower System". A successful design provides an ample amount of groundwater (approximately 2 GPM per ton) and adequate provisions for discharging water back to the aquifer or surface. Open Loop applications are commonly used in coastal areas where soil characteristics allow reinjection wells to return the water back to the aquifer. Note that some states have requirements on the depths of return water reinjection wells, and such wells must be approved by the United States Environmental Protection Agency. Also, bad water quality can increase problems with heat exchanger scaling. Suspended solids can erode the heat exchanger. Strainers can be used to contain suspended solids.

**Figure 4: Open Loop Well Application**





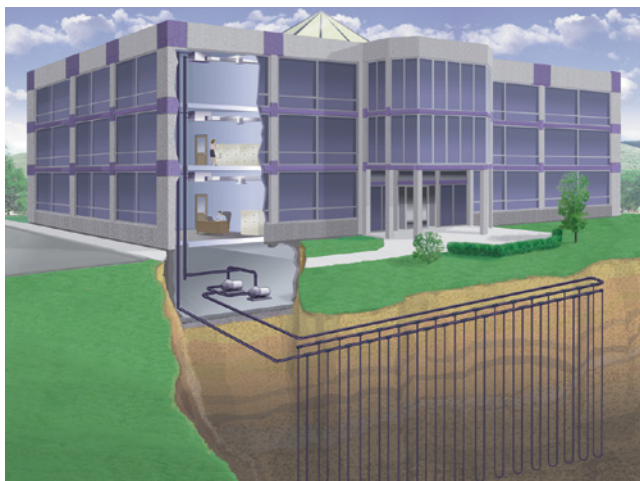
## Closed Loop Geothermal

### Applications: AHRI 330/ISO 13256-1

“Vertical Closed Loop” applications are installed by drilling vertical bore holes into the earth and inserting a plastic polyethylene supply/return pipe into the holes. The vertical wells are connected in parallel reverse return fashion to allow the water from the building to circulate evenly throughout the borefield. The circulating fluid dissipates heat to the ground in a similar manner as a “tower” and adds heat back to the loop like a boiler. If properly designed, the loop field can maintain the loop temperatures necessary to condition the building without the use of a boiler or a tower. Loop temperatures usually range from 37°F to 95°F in Northern climates.

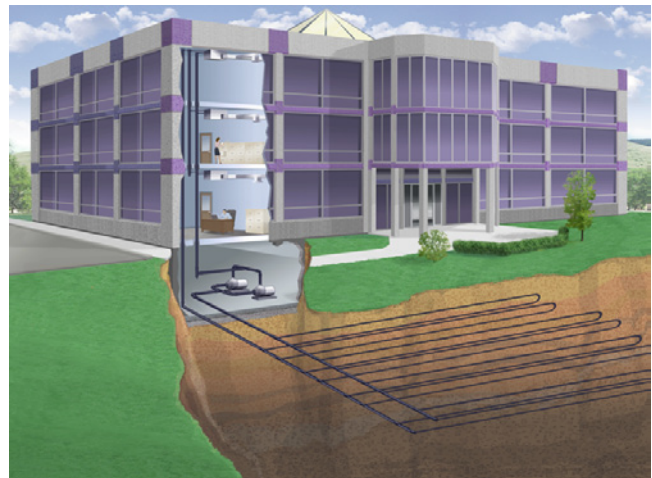
Southern applications can see temperatures ranging from 40°F to 100°F. The number of bore holes and their depth should be determined by using commercial software that is specifically designed for vertical geothermal applications. Typical bore depths of a vertical loop range from 150 to 400 feet and generally require about 250 feet of surface area per ton of cooling.

**Figure 5: Vertical Loop Application**



A closed loop “Horizontal” geothermal application is similar to a vertical loop application with the exception that the loops are installed in trenches approximately 5 feet below the ground surface. The piping may be installed using a “four-pipe” or “six-pipe” design and could require 1,500 to 2,000 square feet of surface area per ton of cooling. Loop temperatures for a commercial application can range from 35°F to 95°F in Northern climates. Southern climates can see temperatures ranging from 40°F to 100°F. Horizontal loops are generally not applied in urban areas because land use and costs can be prohibitive. New advances in installation procedures have improved the assembly time of horizontal loops while keeping the first cost lower than a vertical loop.

**Figure 6: Horizontal Loop Application**



A “Surface Water” or “Lake” closed loop system is a geothermal loop that is directly installed in a lake or body of water that is near the building. In many cases, the body of water is constructed on the building site to meet drainage or aesthetic requirements. Surface loops use bundled polyethylene coils that are connected in the same manner as a vertical or horizontal loop using a parallel reverse return design. The size and the depth of the lake is critical. Commercial design services should be used to certify that a given body of water is sufficient to withstand the building loads. Loop temperatures usually range from 35°F to 90°F and prove to be the best cooling performer and lowest cost loop option of the three geothermal loops. Some applications may not be good candidates due to public access or debris problems from flooding.

**Figure 7: Surface Water Loop Application**



## Application Considerations

### Typical Console Installation



### Unit Location

The Console Water Source Heat Pump is typically installed on an exterior wall.

Locate a Console unit to allow for easy removal of the filter and access panels. Allow a minimum of 18" (46 cm) clearance on each side of the unit for service and maintenance access.

To reduce noise emissions, install a field-provided 1/4 inch thick, rubber isolator pad below the entire base of the unit. The pad should be equal to the overall foot-print size of the unit to provide sound dampening of the unit while in operation. The unit must sit flat on the floor to prevent unwanted noise and vibration.

### Piping

The console water source heat pump unit is typically connected to the supply / return piping using a "reverse return" piping system which includes a flow control device so that flow requirements are met for each zone. A short, high pressure "flexible hose" is used to connect the unit to the building's hard piping and acts as a sound attenuator for both the unit operating noise and hydronic pumping noise. One end of the hose has a swivel fitting to facilitate removal of the unit for replacement or service. Include supply and return shutoff valves in the design to allow removal of a unit without the need to shut down the entire heat pump system. The return valve may be used for balancing and will typically have a "memory stop" so that it can be reopened to the proper position for the flow required. Fixed flow devices are commercially available and can be installed to eliminate the need for memory stop shut off valves. Include Pressure / Temperature ports to allow the service technician to measure water flow and unit operation.

### Condensate Drain

The factory provided condensate drain trap on the console unit is located inside the end cabinet. Condensate removal piping must be pitched away from the unit not less than 1/4" per foot. A vent is required after the trap so that the condensate will drain away from the unit.

The vent can also act as a clean out if the trap becomes clogged. To avoid having waste gases entering the building, the condensate drain should not be directly piped to a drain/waste/vent stack. See local codes for the correct application of condensate piping to drains.

Daikin has available optional fire-rated flexible hoses to better facilitate supply and return piping connections. These flexible hoses reduce vibration between the unit and the rigid piping system.

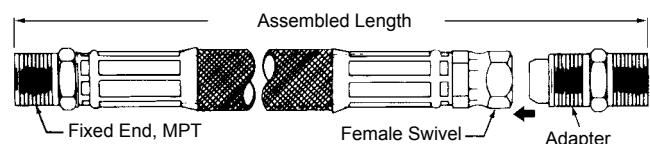
### Fire Rated Supply or Return Hoses



**Table 18: Hose Specifications**

Hose Type	Nominal Length	Max. Recommended Working Pressure	Minimum Burst Pressure @ 70° to 90°	Minimum Bend Radius
1/2" MPT Supply & Return	9"	400 psig	1600 psig	2½"
	12"	400 psig	1600 psig	2½"
	18"	400 psig	1600 psig	2½"
	24"	400 psig	1600 psig	2½"

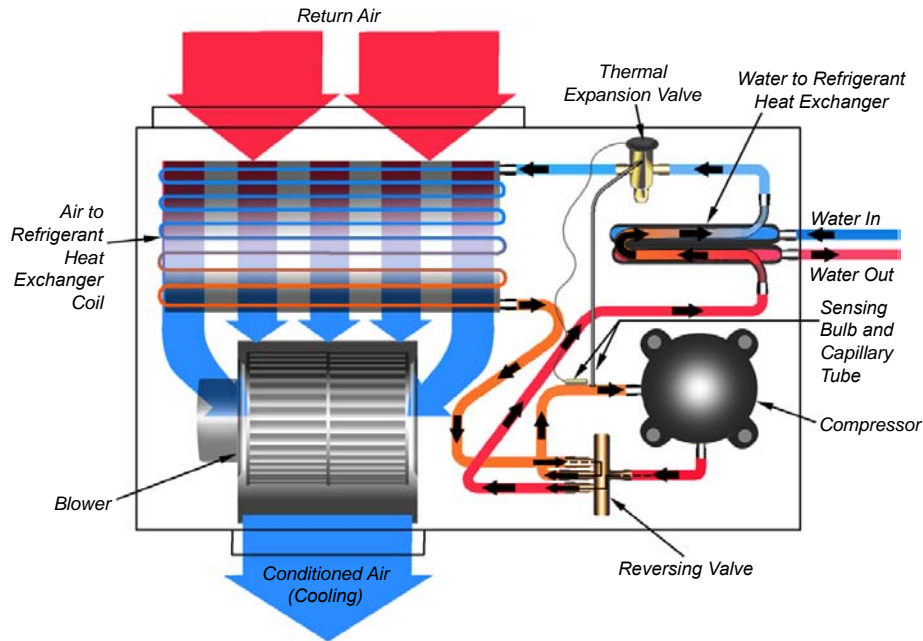
**Figure 8: Hose Detail**



## Typical Cooling and Heating Refrigeration Cycles (For standard heat pump operation only)

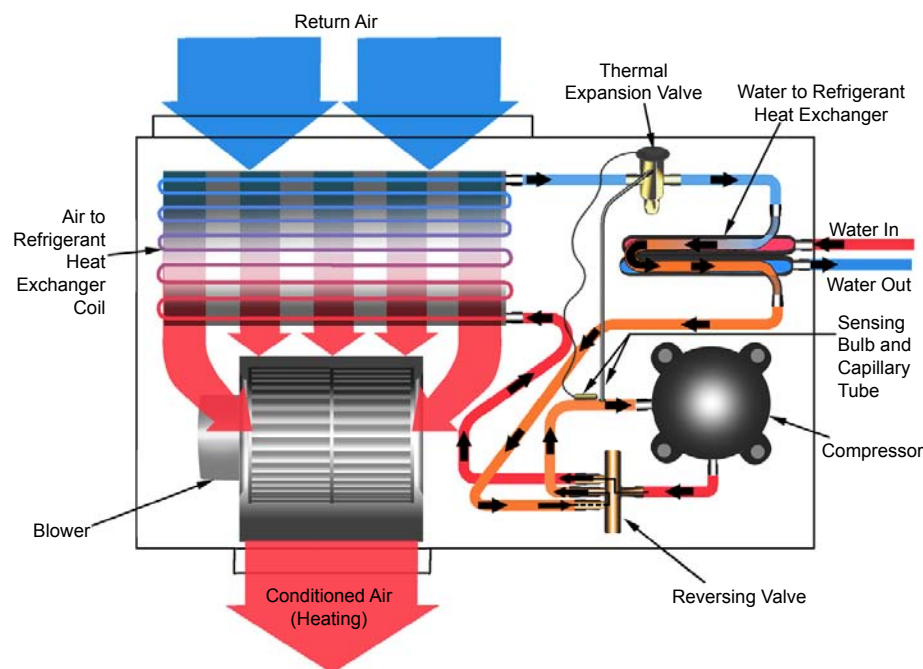
**Figure 9: Cooling Refrigeration Cycle**

When the wall thermostat calls for COOLING, the reversing valve directs the flow of the refrigerant, a hot gas, from the compressor to the water-to-refrigerant heat exchanger. There, the heat is removed by the water, and the hot gas condenses to become a liquid. The liquid then flows through a thermal expansion valve to the air-to-refrigerant heat exchanger coil. The liquid then evaporates and becomes a gas, at the same time absorbing heat and cooling the air passing over the surfaces of the coil. The refrigerant then flows as a low pressure gas through the reversing valve and back to the suction side of the compressor to complete the cycle.



**Figure 10: Heating Refrigeration Cycle**

When the wall thermostat calls for HEATING, the reversing valve directs the flow of the refrigerant, a hot gas, from the compressor to the air-to-refrigerant heat exchanger coil. There, the heat is removed by the air passing over the surfaces of the coil and the hot gas condenses and becomes a liquid. The liquid then flows through a thermal expansion valve to the water-to-refrigerant heat exchanger. The liquid then evaporates and becomes a gas, at the same time absorbing heat and cooling the water. The refrigerant then flows as a low pressure gas through the reversing valve and back to the suction side of the compressor to complete the cycle.





## Unit Selection

Achieving optimal performance with water source heat pump systems requires both accurate system design and proper equipment selection. Use a building load program to determine the heating and cooling loads of each zone prior to making equipment selections. With this information, the Daikin SelectTools™ software selection program for Water Source Heat Pumps can be used to provide fast, accurate and complete selections of all Daikin water source heat pump products. SelectTools software is available by contacting your local Daikin Representative.

While we recommend that you use Daikin SelectTools software for all unit selections, manual selections can be accomplished using the same zone load information and the capacity tables available in this catalog.

### Boiler / Tower Application Manual Selections:

The following example illustrates a typical selection for a zone in a boiler/tower system for a commercial building. A building load program determines that this zone needs 10,430 Btuh of total cooling, 6,950 Btuh of sensible cooling and 9,150 Btuh of total heating. The water temperatures for the boiler/tower system are 90°F for cooling and 70°F for heating. The return air temperature is 80°F dry bulb with 67°F wet bulb for cooling and 70°F for heating.

### Zone Requirements:

Total Cooling Load	=	10,430 Btuh
Sensible Cooling Load	=	6,950 Btuh
Total Heating Load	=	9,150 Btuh
Air Flow Required	=	275 CFM
Return Air Cooling	=	80°FDB / 67°FWB
Return Air - Heating	=	70°FDB

Since a Daikin Model MHC 009 produces approximately 10,000 Btuh of cooling, it is not sufficient for this zone and a model MHC 012 should be considered. Model MHC is chosen because it is specifically designed for a boiler/tower application. Typical water flow rates for boiler/tower applications are 2.0 to 2.5 GPM per ton and in this example no antifreeze is used.

### Selection:

Model MHC 012 (Boiler/Tower)

Total Cooling Capacity @ 90 EWT	=	11,511 Btuh
Sensible cooling capacity @ 90 EWT	=	7,660 Btuh
Total Heating Capacity @ 70 EWT	=	14,160 Btuh
CFM = 275		
Water Flow required to meet capacity	=	8 GPM
Water Pressure drop	=	2.5 (FT. H2O)

### Final Selection: MHC 012

### Geothermal Applications:

The following example illustrates the same zone in a geothermal application.

The load requirements for the zone are the same as the above example – 10,430 Btuh of total cooling and 6,950 Btuh of sensible cooling and 9,150 Btuh of heating. Geothermal loop software programs are available to help determine the size of the loop field based on:

Desired entering water temperatures for the system.

Specific acreage available for the loop which produces specific min./max loop temps for the unit selection.

Entering water temperatures for geothermal systems can be as high as 90° to 100°F and as low as 30°F based on the geographical location of the building. Water flow rates are typically 2.5 to 3 GPM per ton and the use of antifreeze is required in most northern applications.

### Zone Requirements:

Total Cooling Load	=	10,430 BTUH
Sensible Cooling Load	=	6,950 BTUH
Total Heating Load	=	9,150 BTUH
Air Flow Required	=	275 CFM
Return Air Cooling	=	80 DB / 67 WB
Return Air - Heating	=	70 DB

A Daikin Model MHW is chosen for this geothermal application. Model MHW offers insulated water piping for condensation considerations and a different freestat setting to allow entering water temperatures lower than 40°F (with antifreeze). Output capacities should be recalculated using the antifreeze reduction tables that are shown on "Antifreeze Correction Factors" on page 10. The Model MHW 012 is first considered but may not meet the heating load because of the reduced entering water temperatures (35°F) and an antifreeze solution of 21 % propylene (see page 10).

### Selection:

#### Model MHC 012 (Geothermal model)

Total cooling capacity @ 100 EWT	=	10,555 Btuh
× .980	=	10,344
Sensible cooling capacity @ 100 EWT	=	7,257 Btuh
× .980	=	7,112
Total heating capacity @ 35 EWT	=	9,430 Btuh
× .975	=	9,240 (CFM = 284)
Water Flow required to meet capacity	=	2.4 GPM
Water Pressure drop = 2.5 × 1.5	=	3.75 (FT. H2O)

### Final Selection: MHC 012

**Note:** In applications where the zone may be a corner office or have excessive glass area, the heating load could be greater than the heating output capacity of the MHC 012 model (say 7,800 Btuh). The choices are to upsize the unit to the next model available (015).

# Unit Size 007

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
20	1.0	0.6	75/63	<b>Tint = Operation Not Recommended</b>					60	13.4	4570	0.430	3.11
			80/67						70	14.0	4443	0.493	2.64
			85/71						80	14.6	4345	0.565	2.25
	1.5	1.3	75/63						60	15.6	4570	0.430	3.11
			80/67						70	16.0	4443	0.493	2.64
			85/71						80	16.4	4345	0.565	2.25
	2.0	2.2	75/63						60	16.7	4570	0.430	3.11
			80/67						70	17.0	4443	0.493	2.64
			85/71						80	17.3	4345	0.565	2.25
30	1.0	0.6	75/63	50.7	9791	7001	0.186	52.6	60	21.7	5433	0.438	3.63
			80/67	52.1	10556	7188	0.163	64.9	70	22.3	5322	0.501	3.11
			85/71	53.5	11371	7356	0.136	83.4	80	23.0	5175	0.570	2.66
	1.5	1.3	75/63	43.9	10000	7099	0.143	69.8	60	24.4	5478	0.439	3.66
			80/67	44.8	10792	7291	0.112	96.3	70	24.9	5322	0.501	3.11
			85/71	45.8	11642	7464	0.076	153.0	80	25.3	5175	0.570	2.66
	2.0	2.2	75/63	40.5	10085	7139	0.129	78.0	60	25.8	5478	0.439	3.66
			80/67	41.2	10892	7334	0.095	114.6	70	26.2	5322	0.501	3.11
			85/71	41.9	11759	7510	0.055	214.6	80	26.5	5175	0.570	2.66
40	1.0	0.6	75/63	60.3	9368	6806	0.268	35.0	60	30.1	6206	0.444	4.10
			80/67	61.7	10106	6998	0.254	39.7	70	30.7	6122	0.510	3.52
			85/71	63.2	10891	7169	0.237	45.9	80	31.3	6027	0.580	3.05
	1.5	1.3	75/63	53.7	9583	6905	0.233	41.1	60	33.2	6405	0.446	4.21
			80/67	54.7	10352	7101	0.212	48.9	70	33.6	6300	0.512	3.60
			85/71	55.7	11173	7278	0.187	59.9	80	34.1	6124	0.581	3.09
	2.0	2.2	75/63	50.3	9673	6946	0.221	43.7	60	34.8	6459	0.446	4.24
			80/67	51.1	10456	7145	0.197	53.0	70	35.2	6300	0.512	3.60
			85/71	51.8	11291	7324	0.169	66.9	80	35.6	6124	0.581	3.09
50	1.0	0.6	75/63	69.9	8931	6609	0.338	26.4	60	38.5	7030	0.450	4.58
			80/67	71.3	9639	6804	0.333	29.0	70	39.1	6943	0.519	3.92
			85/71	72.8	10393	6980	0.324	32.1	80	39.7	6846	0.591	3.39
	1.5	1.3	75/63	63.5	9149	6707	0.309	29.6	60	42.0	7266	0.451	4.72
			80/67	64.4	9889	6907	0.296	33.4	70	42.4	7165	0.521	4.03
			85/71	65.4	10679	7089	0.280	38.1	80	42.8	7056	0.593	3.48
	2.0	2.2	75/63	60.2	9240	6748	0.299	30.9	60	43.9	7383	0.451	4.79
			80/67	60.9	9995	6951	0.284	35.2	70	44.2	7279	0.522	4.09
			85/71	61.6	10802	7135	0.266	40.7	80	44.5	7164	0.595	3.53
60	1.0	0.6	75/63	79.4	8487	6409	0.398	21.4	60	46.7	7883	0.454	5.09
			80/67	80.8	9163	6607	0.399	23.0	70	47.3	7795	0.527	4.34
			85/71	82.3	9882	6789	0.398	24.8	80	48.0	7697	0.602	3.75
	1.5	1.3	75/63	73.2	8702	6506	0.373	23.3	60	50.7	8177	0.455	5.27
			80/67	74.1	9412	6710	0.369	25.5	70	51.2	8075	0.530	4.46
			85/71	75.1	10169	6897	0.362	28.1	80	51.6	7957	0.605	3.85
	2.0	2.2	75/63	69.9	8793	6547	0.365	24.1	60	52.9	8321	0.455	5.35
			80/67	70.7	9518	6754	0.359	26.5	70	53.2	8209	0.531	4.53
			85/71	71.4	10292	6942	0.349	29.5	80	53.6	8081	0.606	3.91
70	1.0	0.6	75/63	88.9	8041	6209	0.452	17.8	60	54.8	8785	0.456	5.64
			80/67	90.2	8680	6409	0.456	19.0	70	55.5	8690	0.534	4.76
			85/71	91.6	9365	6595	0.461	20.3	80	56.2	8583	0.612	4.11
	1.5	1.3	75/63	82.8	8251	6303	0.429	19.2	60	59.4	9132	0.456	5.86
			80/67	83.7	8925	6510	0.431	20.7	70	59.9	9013	0.536	4.93
			85/71	84.7	9648	6700	0.431	22.4	80	60.4	8891	0.615	4.24
	2.0	2.2	75/63	79.7	8340	6342	0.422	19.8	60	61.9	9306	0.456	5.98
			80/67	80.4	9030	6553	0.422	21.4	70	62.3	9179	0.537	5.01
			85/71	81.1	9769	6746	0.420	23.3	80	62.6	9046	0.617	4.30
80	1.0	0.6	75/63	98.3	7596	6013	0.507	15.0	60	62.8	9724	0.456	6.24
			80/67	99.6	8199	6215	0.514	16.0	70	63.6	9611	0.539	5.22
			85/71	101.0	8842	6403	0.520	17.0	80	64.3	9495	0.620	4.48
	1.5	1.3	75/63	92.4	7800	6103	0.484	16.1	60	68.0	10141	0.456	6.51
			80/67	93.3	8434	6310	0.488	17.3	70	68.5	10003	0.541	5.42
			85/71	94.3	9117	6503	0.492	18.5	80	69.1	9863	0.624	4.63
	2.0	2.2	75/63	89.4	7885	6140	0.477	16.5	60	70.8	10350	0.456	6.64
			80/67	90.1	8534	6350	0.480	17.8	70	71.2	10194	0.541	5.52
			85/71	90.8	9237	6547	0.483	19.1	80	71.6	10039	0.625	4.70
85	1.0	0.6	75/63	103.1	7369	5915	0.533	13.8	60	66.8	10214	0.456	6.56
			80/67	104.3	7958	6119	0.542	14.7	70	67.6	10091	0.541	5.46
			85/71	105.7	8582	6308	0.551	15.6	80	68.4	9966	0.625	4.67
	1.5	1.3	75/63	97.2	7573	6003	0.512	14.8	60	72.2	10662	0.455	6.86
			80/67	98.1	8191	6212	0.518	15.8	70	72.8	10511	0.542	5.68
			85/71	99.0	8852	6406	0.522	16.9	80	73.4	10361	0.628	4.83
	2.0	2.2	75/63	94.2	7657	6040	0.505	15.2	60	75.2	10893	0.456	7.00
			80/67	94.9	8289	6251	0.510	16.3	70	75.6	10722	0.543	5.79
			85/71	95.6	8968	6448	0.513	17.5	80	76.1	10555	0.629	4.92



## Unit Size 007 (continued)

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
90	1.0	0.6	75/63	107.7	7139	5815	0.557	12.8	60	70.7	10709	0.455	6.89
			80/67	109.0	7713	6022	0.569	13.6	70	71.6	10577	0.542	5.72
			85/71	110.3	8319	6213	0.580	14.3	80	72.4	10444	0.628	4.87
	1.5	1.3	75/63	102.0	7342	5903	0.538	13.6	60	76.5	11200	0.455	7.21
			80/67	102.9	7946	6114	0.547	14.5	70	77.1	11027	0.543	5.95
			85/71	103.8	8587	6310	0.553	15.5	80	77.7	10863	0.630	5.05
	2.0	2.2	75/63	99.1	7426	5939	0.532	14.0	60	79.6	11445	0.454	7.39
			80/67	99.7	8043	6152	0.539	14.9	70	80.1	11256	0.543	6.07
			85/71	100.4	8702	6351	0.544	16.0	80	80.5	11077	0.632	5.14
100	1.0	0.6	75/63	117.1	6669	5615	0.602	11.1	<b>Tint = Operation Not Recommended</b> <b>Notes:</b> 1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution. 2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated. 3. See performance correction tables for operating conditions other than those listed. 4. Interpolation is permissible; extrapolation is not. 5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program 6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions. 7. Data is base on unit at full load operation.				
			80/67	118.3	7212	5826	0.619	11.7					
			85/71	119.6	7784	6023	0.634	12.3					
	1.5	1.3	75/63	111.6	6870	5700	0.585	11.7					
			80/67	112.4	7443	5916	0.599	12.4					
			85/71	113.3	8050	6117	0.611	13.2					
	2.0	2.2	75/63	108.8	6953	5735	0.580	12.0					
			80/67	109.4	7539	5953	0.593	12.7					
			85/71	110.1	8162	6157	0.604	13.5					
110	1.0	0.6	75/63	126.3	6185	5410	0.641	9.7					
			80/67	127.5	6694	5626	0.663	10.1					
			85/71	128.7	7231	5830	0.684	10.6					
	1.5	1.3	75/63	121.1	6382	5493	0.628	10.2					
			80/67	121.9	6923	5715	0.647	10.7					
			85/71	122.8	7495	5921	0.663	11.3					
	2.0	2.2	75/63	118.4	6463	5527	0.624	10.4					
			80/67	119.0	7018	5751	0.641	10.9					
			85/71	119.7	7606	5960	0.656	11.6					

## Capacity Tables Notes:

EWT = Entering Water Temperature (°F)

LWT = Leaving Water Temperature (°F)

COP = Coefficient of Performance

WPD = Water Pressure Drop (Ft. Hd)

TOT = Total Heat (Btu)

GPM = Gallons Per Minute

EAT = Entering Air Temperature (°F)

SEN = Sensible Heat (Btu)

kW = Kilowatts

Performance data based on 208/1ph power supply.

# Unit Size 009

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
20	1.1	3.1	75/63	Tint = Operation Not Recommended					60	12.3	5740	0.551	3.05
			80/67						70	13.0	5610	0.633	2.60
			85/71						80	13.7	5520	0.730	2.22
	1.8	5.0	75/63						60	15.1	5930	0.552	3.14
			80/67						70	15.5	5780	0.634	2.67
			85/71						80	16.0	5670	0.730	2.28
	2.5	7.0	75/63						60	16.4	6010	0.553	3.18
			80/67						70	16.7	5850	0.634	2.70
			85/71						80	17.1	5700	0.730	2.29
30	1.1	3.1	75/63	52.6	11850	8350	0.273	43.3	60	20.8	6650	0.560	3.48
			80/67	54.2	12770	8560	0.256	49.9	70	21.4	6510	0.640	2.98
			85/71	55.8	13750	8740	0.236	58.2	80	22.2	6380	0.731	2.56
	1.8	5.0	75/63	44.0	12170	8500	0.204	59.6	60	24.1	6890	0.564	3.58
			80/67	44.9	13140	8710	0.175	74.9	70	24.5	6730	0.643	3.07
			85/71	45.9	14180	8900	0.141	100.6	80	25.0	6570	0.732	2.63
	2.5	7.0	75/63	40.1	12300	8560	0.175	70.3	60	25.7	6990	0.565	3.62
			80/67	40.8	13290	8780	0.141	94.1	70	26.0	6820	0.644	3.11
			85/71	41.5	14360	8970	0.100	143.1	80	26.3	6650	0.733	2.66
40	1.1	3.1	75/63	62.3	11310	8110	0.369	30.6	60	29.1	7600	0.573	3.88
			80/67	63.8	12200	8330	0.361	33.8	70	29.8	7460	0.653	3.35
			85/71	65.5	13140	8520	0.350	37.5	80	30.5	7300	0.740	2.89
	1.8	5.0	75/63	53.8	11660	8270	0.310	37.6	60	33.0	7890	0.576	4.01
			80/67	54.8	12590	8490	0.291	43.3	70	33.5	7740	0.657	3.45
			85/71	55.8	13590	8680	0.268	50.6	80	33.9	7560	0.744	2.98
	2.5	7.0	75/63	50.0	11790	8330	0.284	41.5	60	34.9	8020	0.578	4.06
			80/67	50.7	12740	8550	0.261	48.8	70	35.2	7860	0.659	3.49
			85/71	51.4	13760	8740	0.234	58.9	80	35.6	7670	0.746	3.01
50	1.1	3.1	75/63	71.8	10750	7870	0.450	23.9	60	37.4	8580	0.585	4.30
			80/67	73.3	11600	8090	0.452	25.7	70	38.0	8450	0.668	3.70
			85/71	75.0	12500	8280	0.450	27.8	80	38.8	8290	0.755	3.22
	1.8	5.0	75/63	63.5	11100	8020	0.401	27.7	60	41.9	8940	0.590	4.44
			80/67	64.5	12000	8250	0.393	30.5	70	42.3	8790	0.673	3.82
			85/71	65.5	12960	8450	0.380	34.1	80	42.8	8600	0.760	3.31
	2.5	7.0	75/63	59.8	11240	8080	0.380	29.6	60	44.0	9090	0.591	4.50
			80/67	60.5	12160	8310	0.367	33.2	70	44.4	8930	0.675	3.87
			85/71	61.2	13150	8520	0.350	37.6	80	44.7	8740	0.762	3.36
60	1.1	3.1	75/63	81.2	10180	7620	0.520	19.6	60	45.5	9600	0.597	4.71
			80/67	82.7	10980	7850	0.529	20.8	70	46.2	9470	0.684	4.06
			85/71	84.3	11840	8050	0.536	22.1	80	47.0	9310	0.773	3.53
	1.8	5.0	75/63	73.2	10530	7770	0.479	22.0	60	50.7	10020	0.600	4.89
			80/67	74.2	11390	8000	0.479	23.8	70	51.2	9880	0.690	4.20
			85/71	75.2	12310	8210	0.477	25.8	80	51.7	9690	0.780	3.64
	2.5	7.0	75/63	69.6	10670	7830	0.461	23.1	60	53.2	10220	0.603	4.97
			80/67	70.3	11550	8070	0.458	25.2	70	53.5	10060	0.692	4.25
			85/71	71.0	12490	8280	0.451	27.7	80	53.9	9860	0.783	3.69
70	1.1	3.1	75/63	90.5	9580	7370	0.577	16.6	60	53.6	10660	0.606	5.15
			80/67	92.0	10350	7600	0.594	17.4	70	54.4	10530	0.698	4.42
			85/71	93.6	11170	7810	0.609	18.3	80	55.2	10370	0.792	3.83
	1.8	5.0	75/63	82.8	9940	7520	0.545	18.2	60	59.4	11180	0.610	5.36
			80/67	83.7	10750	7760	0.554	19.4	70	59.9	11010	0.705	4.57
			85/71	84.7	11630	7970	0.560	20.7	80	60.5	10810	0.800	3.96
	2.5	7.0	75/63	79.3	10080	7580	0.530	19.0	60	62.2	11400	0.612	5.46
			80/67	80.0	10920	7820	0.537	20.3	70	62.6	11210	0.707	4.64
			85/71	80.7	11820	8040	0.539	21.9	80	63.0	11010	0.803	4.02
80	1.1	3.1	75/63	99.7	8980	7120	0.621	14.5	60	61.6	11790	0.615	5.62
			80/67	101.1	9700	7350	0.645	15.0	70	62.4	11630	0.713	4.78
			85/71	102.7	10470	7570	0.668	15.7	80	63.3	11450	0.811	4.14
	1.8	5.0	75/63	92.3	9330	7260	0.597	15.6	60	68.1	12380	0.617	5.87
			80/67	93.3	10100	7510	0.615	16.4	70	68.6	12190	0.719	4.97
			85/71	94.2	10930	7730	0.630	17.3	80	69.2	11970	0.819	4.28
	2.5	7.0	75/63	89.0	9470	7320	0.586	16.2	60	71.2	12650	0.619	5.98
			80/67	89.7	10270	7570	0.601	17.1	70	71.6	12440	0.721	5.05
			85/71	90.4	11120	7790	0.614	18.1	80	72.1	12200	0.822	4.35
85	1.1	3.1	75/63	104.6	8800	7040	0.654	13.5	60	65.5	12350	0.617	5.86
			80/67	105.7	9370	7230	0.666	14.1	70	66.4	12190	0.719	4.97
			85/71	107.2	10120	7450	0.693	14.6	80	67.3	12010	0.819	4.29
	1.8	5.0	75/63	97.1	9020	7130	0.619	14.6	60	72.4	13010	0.621	6.13
			80/67	98.0	9770	7380	0.641	15.3	70	73.0	12790	0.724	5.17
			85/71	99.0	10580	7610	0.660	16.0	80	73.6	12560	0.827	4.45
	2.5	7.0	75/63	93.8	9150	7190	0.609	15.0	60	75.7	13290	0.622	6.26
80/67			94.5	9930	7440	0.629	15.8	70	76.1	13060	0.727	5.26	
			95.2	10760	7670	0.645	16.7	80	76.6	12810	0.830	4.52	

## Unit Size 009 (continued)

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
90	1.1	3.1	75/63	109.2	8520	6930	0.673	12.7	60	69.4	12950	0.621	6.10
			80/67	110.5	9180	7160	0.701	13.1	70	70.3	12760	0.724	5.16
			85/71	111.7	9760	7330	0.714	13.7	80	71.3	12560	0.827	4.45
	1.8	5.0	75/63	101.8	8700	7000	0.637	13.6	60	76.6	13650	0.624	6.40
			80/67	102.7	9430	7250	0.663	14.2	70	77.3	13420	0.730	5.38
			85/71	103.7	10210	7480	0.687	14.9	80	77.9	13160	0.835	4.62
	2.5	7.0	75/63	98.6	8840	7060	0.629	14.0	60	80.1	13950	0.625	6.54
			80/67	99.3	9590	7310	0.653	14.7	70	80.6	13700	0.732	5.48
			85/71	100.0	10400	7540	0.674	15.4	80	81.1	13420	0.837	4.70
100	1.1	3.1	75/63	118.3	7930	6690	0.705	11.3	<b>Tint = Operation Not Recommended</b> <b>Notes:</b> 1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution. 2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated. 3. See performance correction tables for operating conditions other than those listed. 4. Interpolation is permissible; extrapolation is not. 5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program 6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions. 7. Data is base on unit at full load operation.				
			80/67	119.6	8550	6920	0.738	11.6					
			85/71	121.0	9210	7140	0.771	11.9					
	1.8	5.0	75/63	111.5	8250	6820	0.689	12.0					
			80/67	112.3	8910	7060	0.718	12.4					
			85/71	113.2	9620	7280	0.746	12.9					
	2.5	7.0	75/63	108.4	8370	6870	0.682	12.3					
			80/67	109.0	9060	7110	0.708	12.8					
			85/71	109.5	9660	7290	0.720	13.4					
110	1.1	3.1	75/63	127.4	7330	6450	0.729	10.1					
			80/67	128.6	7910	6690	0.767	10.3					
			85/71	130.0	8510	6910	0.805	10.6					
	1.8	5.0	75/63	120.9	7640	6570	0.717	10.6					
			80/67	121.8	8260	6820	0.752	11.0					
			85/71	122.6	8920	7050	0.786	11.3					
	2.5	7.0	75/63	118.0	7770	6620	0.712	10.9					
			80/67	118.6	8410	6870	0.745	11.3					
				119.2	9090	7100	0.778	11.7					

## Capacity Tables Notes:

EWT = Entering Water Temperature (°F)

LWT = Leaving Water Temperature (°F)

COP = Coefficient of Performance

WPD = Water Pressure Drop (Ft. Hd)

TOT = Total Heat (Btu)

GPM = Gallons Per Minute

EAT = Entering Air Temperature (°F)

SEN = Sensible Heat (Btu)

kW = Kilowatts

Performance data based on 208/1ph power supply.

# Unit Size 012

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
20	1.6	1.6	75/63	Tint = Operation Not Recommended					60	12.9	7450	0.645	3.38
			80/67						70	13.4	7270	0.732	2.91
			85/71						80	14.0	7110	0.832	2.50
	2.4	2.5	75/63						60	15.1	7680	0.649	3.46
			80/67						70	15.5	7460	0.736	2.97
			85/71						80	15.8	7280	0.834	2.56
	3.2	3.3	75/63						60	16.3	7780	0.651	3.50
			80/67						70	16.5	7560	0.737	3.00
			85/71						80	16.8	7360	0.835	2.58
30	1.6	1.6	75/63	48.4	14210	9170	0.287	49.6	60	21.5	8660	0.667	3.80
			80/67	49.7	15340	9350	0.259	59.3	70	22.1	8440	0.753	3.29
			85/71	51.1	16580	9510	0.225	73.6	80	22.6	8230	0.848	2.84
	2.4	2.5	75/63	42.4	14470	9300	0.224	64.6	60	24.1	8920	0.672	3.89
			80/67	43.2	15650	9490	0.186	84.0	70	24.5	8690	0.757	3.36
			85/71	44.2	16930	9700	0.140	120.9	80	24.9	8460	0.851	2.91
	3.2	3.3	75/63	39.3	14610	9470	0.194	75.3	60	25.5	9050	0.675	3.93
			80/67	39.9	15770	9550	0.152	104.0	70	25.8	8820	0.759	3.40
			85/71	40.6	17070	9720	0.101	169.3	80	26.1	8570	0.854	2.94
40	1.6	1.6	75/63	58.3	13680	8910	0.399	34.3	60	30.0	9890	0.693	4.18
			80/67	59.6	14790	9090	0.380	38.9	70	30.6	9700	0.778	3.65
			85/71	61.0	15970	9250	0.358	44.6	80	31.2	9460	0.871	3.18
	2.4	2.5	75/63	52.3	13960	9040	0.342	40.9	60	33.1	10210	0.701	4.27
			80/67	53.1	15100	9240	0.314	48.1	70	33.5	10010	0.785	3.73
			85/71	54.1	16340	9410	0.280	58.3	80	33.9	9750	0.877	3.25
	3.2	3.3	75/63	49.2	14080	9100	0.314	44.8	60	34.7	10370	0.704	4.31
			80/67	49.9	15240	9300	0.282	54.0	70	35.0	10160	0.789	3.77
			85/71	50.6	16500	9480	0.243	67.9	80	35.3	9880	0.880	3.29
50	1.6	1.6	75/63	68.1	13130	8640	0.500	26.3	60	38.5	11150	0.722	4.53
			80/67	69.3	14200	8830	0.492	28.9	70	39.0	10990	0.809	3.98
			85/71	70.7	15340	8990	0.479	32.0	80	39.7	10750	0.900	3.50
	2.4	2.5	75/63	62.1	13420	8780	0.449	29.9	60	42.1	11530	0.730	4.63
			80/67	63.0	14530	8980	0.431	33.7	70	42.4	11360	0.818	4.07
			85/71	63.9	15720	9150	0.409	38.5	80	42.8	11120	0.909	3.58
	3.2	3.3	75/63	59.1	13550	8840	0.425	31.9	60	43.9	11720	0.734	4.68
			80/67	59.8	14670	9040	0.403	36.5	70	44.2	11550	0.823	4.11
			85/71	60.5	15890	9220	0.375	42.4	80	44.5	11290	0.913	3.62
60	1.6	1.6	75/63	77.7	12560	8360	0.593	21.2	60	47.0	12440	0.749	4.87
			80/67	79.0	13580	8550	0.593	22.9	70	47.5	12310	0.842	4.28
			85/71	80.4	14680	8720	0.590	24.9	80	48.1	12090	0.935	3.79
	2.4	2.5	75/63	72.0	12850	8500	0.547	23.5	60	51.0	12900	0.759	4.98
			80/67	72.8	13920	8700	0.539	25.9	70	51.3	12740	0.852	4.38
			85/71	73.7	15070	8880	0.526	28.6	80	51.7	12510	0.945	3.88
	3.2	3.3	75/63	69.0	12990	8560	0.525	24.7	60	53.1	13110	0.763	5.03
			80/67	69.7	14080	8770	0.513	27.4	70	53.4	12950	0.857	4.43
			85/71	70.4	15250	8950	0.496	30.8	80	53.7	12720	0.951	3.92
70	1.6	1.6	75/63	87.4	11950	8070	0.675	17.7	60	55.4	13790	0.776	5.21
			80/67	88.6	12930	8270	0.685	18.9	70	55.9	13650	0.875	4.57
			85/71	90.0	13990	8440	0.691	20.2	80	56.5	13440	0.970	4.06
	2.4	2.5	75/63	81.7	12260	8210	0.636	19.3	60	59.8	14320	0.785	5.34
			80/67	82.6	13280	8420	0.637	20.9	70	60.2	14160	0.887	4.68
			85/71	83.5	14390	8600	0.634	22.7	80	60.6	13940	0.985	4.14
	3.2	3.3	75/63	78.8	12400	8280	0.616	20.1	60	62.2	14580	0.790	5.41
			80/67	79.5	13440	8490	0.614	21.9	70	62.5	14400	0.893	4.73
			85/71	80.2	14570	8680	0.607	24.0	80	62.8	14170	0.991	4.19
80	1.6	1.6	75/63	96.4	10960	7600	0.746	14.7	60	63.6	15190	0.799	5.57
			80/67	96.9	11550	7440	0.756	15.3	70	64.2	15030	0.907	4.86
			85/71	99.5	13260	8160	0.781	17.0	80	64.9	14830	1.009	4.31
	2.4	2.5	75/63	91.4	11630	7920	0.713	16.3	60	68.6	15800	0.808	5.73
			80/67	92.3	12610	8130	0.724	17.4	70	69.0	15610	0.918	4.98
			85/71	93.2	13670	8320	0.732	18.7	80	69.5	15370	1.022	4.41
	3.2	3.3	75/63	88.6	11770	7980	0.696	16.9	60	71.3	16110	0.812	5.81
			80/67	89.3	12780	8200	0.705	18.1	70	71.6	15900	0.924	5.04
			85/71	90.0	13860	8390	0.708	19.6	80	72.0	15640	1.029	4.45
85	1.6	1.6	75/63	101.0	10530	7400	0.779	13.5	60	67.8	15900	0.809	5.76
			80/67	102.4	11520	7660	0.800	14.4	70	68.4	15730	0.921	5.01
			85/71	104.2	12880	8010	0.821	15.7	80	69.0	15520	1.026	4.43
	2.4	2.5	75/63	95.9	10930	7590	0.748	14.6	60	73.0	16580	0.819	5.93
			80/67	97.1	12270	7980	0.764	16.1	70	73.4	16360	0.933	5.14
			85/71	98.0	13300	8170	0.776	17.1	80	73.9	16090	1.040	4.53
	3.2	3.3	75/63	93.3	11110	7670	0.733	15.2	60	75.8	16900	0.822	6.02
			80/67	94.2	12430	8050	0.745	16.7	70	76.1	16660	0.938	5.20
			94.8	13490	8250	0.754	17.9	80	76.5	16380	1.047	4.58	

## Unit Size 012 (continued)

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
90	1.6	1.6	75/63	105.6	10090	7200	0.808	12.5	60	71.8	16650	0.820	5.95
			80/67	106.9	11050	7470	0.834	13.3	70	72.5	16450	0.934	5.16
			85/71	108.3	12080	7700	0.858	14.1	80	73.2	16210	1.042	4.55
	2.4	2.5	75/63	100.7	10490	7390	0.781	13.4	60	77.3	17360	0.828	6.14
			80/67	101.6	11510	7660	0.800	14.4	70	77.8	17120	0.947	5.29
			85/71	102.8	12920	8030	0.818	15.8	80	78.3	16830	1.057	4.66
	3.2	3.3	75/63	98.1	10670	7470	0.768	13.9	60	80.3	17710	0.832	6.23
			80/67	98.8	11720	7750	0.783	15.0	70	80.7	17440	0.951	5.37
			85/71	99.7	13110	8100	0.797	16.4	80	81.1	17120	1.062	4.72
100	1.6	1.6	75/63	114.7	9190	6790	0.859	10.7	<b>Tint = Operation Not Recommended</b> <b>Notes:</b> 1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution. 2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated. 3. See performance correction tables for operating conditions other than those listed. 4. Interpolation is permissible; extrapolation is not. 5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program 6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions. 7. Data is base on unit at full load operation.				
			80/67	116.0	10100	7070	0.893	11.3					
			85/71	117.4	11080	7320	0.926	12.0					
	2.4	2.5	75/63	110.1	9580	6970	0.838	11.4					
			80/67	111.0	10560	7260	0.867	12.2					
			85/71	111.9	11590	7520	0.892	13.0					
	3.2	3.3	75/63	107.7	9770	7050	0.828	11.8					
			80/67	108.3	10760	7350	0.853	12.6					
			85/71	109.1	11830	7610	0.875	13.5					
110	1.6	1.6	75/63	123.7	8250	6350	0.898	9.2					
			80/67	125.0	9110	6650	0.940	9.7					
			85/71	126.3	10030	6920	0.982	10.2					
	2.4	2.5	75/63	119.4	8630	6530	0.883	9.8					
			80/67	120.3	9560	6840	0.921	10.4					
			85/71	121.2	10540	7110	0.956	11.0					
	3.2	3.3	75/63	117.2	8810	6610	0.876	10.1					
			80/67	117.8	9760	6920	0.912	10.7					
				118.5	10770	7200	0.943	11.4					

## Capacity Tables Notes:

EWT = Entering Water Temperature (°F)

LWT = Leaving Water Temperature (°F)

COP = Coefficient of Performance

WPD = Water Pressure Drop (Ft. Hd)

TOT = Total Heat (Btu)

GPM = Gallons Per Minute

EAT = Entering Air Temperature (°F)

SEN = Sensible Heat (Btu)

kW = Kilowatts

Performance data based on 208/1ph power supply.



# Unit Size 015

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
20	2.0	2.5	75/63	<b>Tint = Operation Not Recommended</b>					60	13.4	8980	0.807	3.26
			80/67						70	14.0	8860	0.964	2.69
			85/71						80	14.7	8840	1.184	2.19
	3.0	5.3	75/63						60	15.6	9050	0.806	3.29
			80/67						70	16.0	8860	0.964	2.69
			85/71						80	16.5	8840	1.184	2.19
	4.0	9.0	75/63						60	16.7	9050	0.806	3.29
			80/67						70	17.0	8860	0.964	2.69
			85/71						80	17.4	8840	1.184	2.19
30	2.0	2.5	75/63	50.6	19740	12970	0.400	49.4	60	22.0	10450	0.802	3.82
			80/67	52.2	21440	13270	0.374	57.2	70	22.6	10270	0.940	3.20
			85/71	54.0	23330	13650	0.344	67.7	80	23.2	10160	1.113	2.68
	3.0	5.3	75/63	44.0	20400	13290	0.314	64.9	60	24.4	10790	0.803	3.93
			80/67	45.2	22310	13860	0.271	82.2	70	24.9	10510	0.938	3.28
			85/71	46.4	24420	14800	0.220	111.0	80	25.4	10270	1.110	2.71
	4.0	9.0	75/63	40.5	20370	13270	0.315	64.6	60	25.8	10840	0.804	3.95
			80/67	41.4	22470	14070	0.250	89.7	70	26.2	10510	0.938	3.28
			85/71	42.4	24280	13960	0.179	135.3	80	26.5	10270	1.110	2.71
40	2.0	2.5	75/63	60.0	18640	12410	0.531	35.1	60	30.3	12080	0.811	4.36
			80/67	61.6	20310	12810	0.518	39.2	70	31.0	11820	0.938	3.69
			85/71	63.2	22040	13050	0.500	44.1	80	31.7	11620	1.091	3.12
	3.0	5.3	75/63	53.6	19210	12680	0.465	41.3	60	33.3	12520	0.814	4.51
			80/67	54.7	21020	13110	0.430	48.9	70	33.7	12220	0.940	3.81
			85/71	55.8	22880	13390	0.397	57.6	80	34.2	11970	1.091	3.21
	4.0	9.0	75/63	50.2	19210	12680	0.465	41.3	60	34.9	12740	0.816	4.57
			80/67	51.0	21110	13160	0.418	50.5	70	35.2	12410	0.942	3.86
			85/71	52.0	23180	13530	0.362	64.1	80	35.6	12060	1.090	3.24
50	2.0	2.5	75/63	69.2	17460	11850	0.645	27.1	60	38.6	13830	0.826	4.90
			80/67	70.8	19060	12220	0.645	29.5	70	39.3	13520	0.951	4.16
			85/71	72.5	20780	12540	0.640	32.4	80	40.0	13240	1.093	3.55
	3.0	5.3	75/63	63.1	17990	12100	0.597	30.2	60	42.0	14400	0.831	5.07
			80/67	64.2	19820	12550	0.571	34.7	70	42.5	14040	0.956	4.30
			85/71	65.4	21640	12920	0.550	39.3	80	43.1	13710	1.095	3.67
	4.0	9.0	75/63	59.8	17990	12100	0.597	30.2	60	43.9	14680	0.833	5.16
			80/67	60.7	19840	12560	0.568	34.9	70	44.3	14300	0.958	4.37
			85/71	61.6	21820	12960	0.528	41.4	80	44.7	13930	1.097	3.72
60	2.0	2.5	75/63	78.4	16310	11320	0.745	21.9	60	46.8	15710	0.844	5.45
			80/67	79.9	17790	11670	0.756	23.5	70	47.5	15360	0.970	4.64
			85/71	81.6	19410	12010	0.763	25.4	80	48.3	15010	1.108	3.97
	3.0	5.3	75/63	72.5	16710	11500	0.711	23.5	60	50.7	16410	0.850	5.66
			80/67	73.6	18460	11960	0.699	26.4	70	51.3	16000	0.978	4.79
			85/71	74.8	20280	12350	0.688	29.5	80	51.8	15600	1.116	4.10
	4.0	9.0	75/63	69.4	16710	11500	0.711	23.5	60	52.9	16760	0.853	5.75
			80/67	70.2	18460	11960	0.699	26.4	70	53.3	16330	0.982	4.87
			85/71	71.2	20410	12400	0.676	30.2	80	53.7	15900	1.119	4.16
70	2.0	2.5	75/63	87.7	15290	10850	0.834	18.3	60	54.8	17690	0.860	6.03
			80/67	89.1	16630	11190	0.853	19.5	70	55.6	17300	0.993	5.10
			85/71	90.7	18110	11510	0.872	20.8	80	56.4	16910	1.133	4.37
	3.0	5.3	75/63	82.0	15550	10970	0.811	19.2	60	59.3	18560	0.869	6.26
			80/67	83.0	17120	11390	0.813	21.1	70	59.9	18100	1.002	5.29
			85/71	84.2	18880	11800	0.808	23.4	80	60.5	17640	1.142	4.53
	4.0	9.0	75/63	79.0	15550	10970	0.811	19.2	60	61.8	18980	0.872	6.38
			80/67	79.8	17120	11390	0.813	21.1	70	62.2	18490	1.006	5.38
			85/71	80.6	18890	11810	0.807	23.4	80	62.7	18000	1.147	4.60
80	2.0	2.5	75/63	97.2	14460	10490	0.908	15.9	60	62.7	19790	0.878	6.60
			80/67	98.5	15630	10790	0.937	16.7	70	63.6	19360	1.018	5.57
			85/71	99.9	16950	11080	0.965	17.6	80	64.5	18920	1.159	4.78
	3.0	5.3	75/63	91.5	14600	10550	0.893	16.3	60	67.8	20810	0.885	6.89
			80/67	92.5	15960	10920	0.909	17.5	70	68.4	20310	1.027	5.79
			85/71	93.5	17520	11290	0.918	19.1	80	69.1	19800	1.173	4.95
	4.0	9.0	75/63	88.6	14600	10550	0.893	16.3	60	70.6	21340	0.891	7.02
			80/67	89.4	15960	10920	0.909	17.5	70	71.1	20800	1.033	5.90
			85/71	90.2	17520	11290	0.918	19.1	80	71.6	20250	1.179	5.03
85	2.0	2.5	75/63	102.0	14110	10330	0.940	15.0	60	66.6	20870	0.886	6.90
			80/67	103.2	15220	10620	0.974	15.6	70	67.5	20420	1.029	5.81
			85/71	104.5	16450	10900	1.006	16.3	80	68.4	19960	1.175	4.98
	3.0	5.3	75/63	96.4	14240	10390	0.928	15.3	60	72.0	22000	0.895	7.20
			80/67	97.2	15470	10720	0.951	16.3	70	72.7	21460	1.039	6.05
			85/71	98.2	16920	11070	0.967	17.5	80	73.3	20920	1.187	5.16
	4.0	9.0	75/63	93.5	14240	10390	0.928	15.3	60	75.0	22560	0.898	7.36
			80/67	94.2	15470	10720	0.951	16.3	70	75.5	21990	1.046	6.16
			85/71	94.9	16920	11070	0.967	17.5	80	76.0	21410	1.194	5.25

## Unit Size 015 (continued)

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
90	2.0	2.5	75/63	106.7	13760	10180	0.967	14.2	60	70.5	21990	0.895	7.20
			80/67	107.9	14850	10470	1.008	14.7	70	71.4	21510	1.039	6.06
			85/71	109.2	16010	10740	1.045	15.3	80	72.4	21020	1.189	5.18
	3.0	5.3	75/63	101.2	13870	10230	0.959	14.5	60	76.2	23210	0.903	7.53
			80/67	102.1	15060	10560	0.989	15.2	70	76.9	22650	1.053	6.30
			85/71	103.0	16380	10870	1.012	16.2	80	77.6	22070	1.202	5.38
	4.0	9.0	75/63	98.4	13870	10230	0.959	14.5	60	79.3	23820	0.907	7.69
			80/67	99.0	15060	10560	0.989	15.2	70	79.9	23210	1.057	6.44
			85/71	99.7	16380	10870	1.012	16.2	80	80.4	22600	1.210	5.47
100	2.0	2.5	75/63	116.2	13050	9870	1.010	12.9	<b>Tint = Operation Not Recommended</b> <b>Notes:</b> 1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution. 2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated. 3. See performance correction tables for operating conditions other than those listed. 4. Interpolation is permissible; extrapolation is not. 5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program 6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions. 7. Data is base on unit at full load operation.				
			80/67	117.4	14080	10170	1.061	13.3					
			85/71	118.6	15180	10440	1.110	13.7					
	3.0	5.3	75/63	110.8	13110	9900	1.007	13.0					
			80/67	111.7	14250	10240	1.050	13.6					
			85/71	112.6	15480	10550	1.088	14.2					
	4.0	9.0	75/63	108.1	13110	9900	1.007	13.0					
			80/67	108.8	14250	10240	1.050	13.6					
			85/71	109.4	15480	10550	1.088	14.2					
110	2.0	2.5	75/63	125.5	12310	9560	1.042	11.8					
			80/67	126.7	13280	9860	1.100	12.1					
			85/71	127.9	14320	10140	1.157	12.4					
	3.0	5.3	75/63	120.4	12320	9560	1.042	11.8					
			80/67	121.2	13400	9910	1.095	12.2					
			85/71	122.1	14570	10230	1.145	12.7					
	4.0	9.0	75/63	117.8	12320	9560	1.042	11.8					
			80/67	118.4	13400	9910	1.095	12.2					
				119.1	14570	10230	1.145	12.7					

## Capacity Tables Notes:

EWT = Entering Water Temperature (°F)

LWT = Leaving Water Temperature (°F)

COP = Coefficient of Performance

WPD = Water Pressure Drop (Ft. Hd)

TOT = Total Heat (Btu)

GPM = Gallons Per Minute

EAT = Entering Air Temperature (°F)

SEN = Sensible Heat (Btu)

kW = Kilowatts

Performance data based on 208/1ph power supply.

# Unit Size 018

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
20	2.4	3.6	75/63	Tint = Operation Not Recommended					60	12.8	11560	1.001	3.38
			80/67						70	13.1	11300	1.055	3.14
			85/71						80	13.5	11090	1.131	2.87
	3.6	7.7	75/63						60	15.0	11880	1.017	3.42
			80/67						70	15.3	11600	1.070	3.18
			85/71						80	15.5	11360	1.146	2.90
	4.8	13.2	75/63						60	16.2	12030	1.024	3.44
			80/67						70	16.4	11740	1.077	3.19
			85/71						80	16.6	11480	1.153	2.92
30	2.4	3.6	75/63	48.4	20850	13490	0.536	38.9	60	21.5	13290	1.073	3.63
			80/67	49.7	22490	13780	0.490	45.9	70	21.9	13000	1.133	3.36
			85/71	51.0	24260	14040	0.432	56.2	80	22.3	12720	1.213	3.07
	3.6	7.7	75/63	42.3	21080	13620	0.451	46.7	60	24.2	13670	1.085	3.69
			80/67	43.1	22820	13940	0.361	63.1	70	24.4	13340	1.146	3.41
			85/71	43.9	24620	14170	0.273	90.2	80	24.7	13050	1.226	3.12
	4.8	13.2	75/63	39.2	21080	13620	0.451	46.7	60	25.6	13850	1.090	3.72
			80/67	39.8	22820	13940	0.361	63.1	70	25.8	13520	1.152	3.44
			85/71	40.4	24680	14200	0.248	99.4	80	26.0	13210	1.233	3.14
40	2.4	3.6	75/63	58.2	19970	13000	0.706	28.3	60	30.1	15070	1.121	3.94
			80/67	59.5	21540	13280	0.685	31.4	70	30.6	14740	1.191	3.62
			85/71	60.8	23220	13520	0.654	35.5	80	31.1	14410	1.278	3.30
	3.6	7.7	75/63	52.1	20180	13120	0.641	31.5	60	33.2	15530	1.131	4.02
			80/67	53.0	21850	13440	0.583	37.5	70	33.5	15160	1.203	3.69
			85/71	53.8	23600	13700	0.522	45.2	80	33.9	14800	1.291	3.36
	4.8	13.2	75/63	49.1	20180	13120	0.641	31.5	60	34.8	15750	1.135	4.06
			80/67	49.7	21850	13440	0.583	37.5	70	35.1	15360	1.208	3.72
			85/71	50.4	23650	13720	0.504	46.9	80	35.3	14990	1.298	3.38
50	2.4	3.6	75/63	67.9	19080	12530	0.844	22.6	60	38.7	16910	1.156	4.29
			80/67	69.1	20580	12800	0.843	24.4	70	39.2	16530	1.238	3.91
			85/71	70.4	22190	13040	0.832	26.7	80	39.7	16170	1.335	3.55
	3.6	7.7	75/63	62.0	19280	12640	0.795	24.3	60	42.2	17460	1.165	4.39
			80/67	62.8	20880	12950	0.762	27.4	70	42.5	17050	1.251	3.99
			85/71	63.7	22580	13210	0.724	31.2	80	42.9	16650	1.350	3.61
	4.8	13.2	75/63	59.0	19280	12640	0.795	24.3	60	44.0	17730	1.169	4.44
			80/67	59.6	20880	12950	0.762	27.4	70	44.3	17300	1.257	4.03
			85/71	60.2	22610	13230	0.714	31.7	80	44.6	16880	1.357	3.64
60	2.4	3.6	75/63	77.5	18180	12070	0.953	19.1	60	47.1	18840	1.186	4.66
			80/67	78.7	19610	12340	0.966	20.3	70	47.7	18430	1.283	4.21
			85/71	80.0	21130	12570	0.977	21.6	80	48.3	18020	1.392	3.79
	3.6	7.7	75/63	71.7	18360	12160	0.917	20.0	60	51.1	19490	1.195	4.78
			80/67	72.5	19890	12470	0.908	21.9	70	51.5	19030	1.297	4.30
			85/71	73.4	21520	12740	0.888	24.2	80	51.9	18580	1.410	3.86
	4.8	13.2	75/63	68.8	18360	12160	0.917	20.0	60	53.2	19810	1.201	4.83
			80/67	69.4	19890	12470	0.908	21.9	70	53.5	19340	1.305	4.34
			85/71	70.0	21540	12750	0.885	24.3	80	53.8	18870	1.419	3.90
70	2.4	3.6	75/63	87.0	17290	11590	1.047	16.5	60	55.5	20860	1.218	5.01
			80/67	88.2	18640	11870	1.069	17.4	70	56.1	20410	1.332	4.49
			85/71	89.5	20090	12120	1.089	18.4	80	56.8	19960	1.455	4.02
	3.6	7.7	75/63	81.4	17430	11670	1.019	17.1	60	59.9	21650	1.233	5.14
			80/67	82.2	18890	11990	1.023	18.5	70	60.4	21140	1.353	4.58
			85/71	83.1	20450	12280	1.021	20.0	80	60.9	20650	1.480	4.09
	4.8	13.2	75/63	78.5	17430	11670	1.019	17.1	60	62.3	22020	1.241	5.20
			80/67	79.1	18890	11990	1.023	18.5	70	62.6	21500	1.363	4.62
			85/71	79.8	20450	12280	1.021	20.0	80	63.0	20980	1.492	4.12
80	2.4	3.6	75/63	96.5	16380	11110	1.136	14.4	60	63.8	22990	1.262	5.33
			80/67	97.7	17660	11400	1.162	15.2	70	64.5	22500	1.395	4.73
			85/71	98.9	19030	11650	1.189	16.0	80	65.2	22020	1.533	4.21
	3.6	7.7	75/63	91.1	16490	11170	1.114	14.8	60	68.7	23900	1.286	5.44
			80/67	91.8	17880	11500	1.125	15.9	70	69.2	23360	1.424	4.81
			85/71	92.7	19360	11790	1.133	17.1	80	69.8	22830	1.568	4.27
	4.8	13.2	75/63	88.3	16490	11170	1.114	14.8	60	71.3	24360	1.299	5.49
			80/67	88.9	17880	11500	1.125	15.9	70	71.8	23800	1.440	4.84
			85/71	89.5	19360	11790	1.133	17.1	80	72.2	23230	1.586	4.29
85	2.4	3.6	75/63	101.3	15920	10880	1.181	13.5	60	67.9	24080	1.291	5.46
			80/67	102.4	17170	11170	1.208	14.2	70	68.7	23590	1.433	4.82
			85/71	103.6	18500	11420	1.237	15.0	80	69.4	23100	1.580	4.28
	3.6	7.7	75/63	95.9	16020	10930	1.162	13.8	60	73.1	25080	1.321	5.56
			80/67	96.7	17370	11260	1.174	14.8	70	73.6	24520	1.469	4.89
			85/71	97.5	18810	11550	1.185	15.9	80	74.2	23970	1.620	4.33
	4.8	13.2	75/63	93.2	16020	10930	1.162	13.8	60	75.9	25570	1.337	5.60
			80/67	93.7	17370	11260	1.174	14.8	70	76.3	24990	1.489	4.92
			94.4	18810	11550	1.185	15.9	80	76.7	24410	1.642	4.35	

## Unit Size 018 (continued)

EWT (°F)	GPM	WPD	Cooling						Heating				
			EAT (°F)	LWT	TOT	SEN	kW	EER	EAT (°F)	LWT	TOT	kW	COP
90	2.4	3.6	75/63	106.1	15460	10640	1.228	12.6	60	72.0	25210	1.325	5.57
			80/67	107.1	16680	10930	1.254	13.3	70	72.8	24700	1.476	4.90
			85/71	108.3	17970	11190	1.283	14.0	80	73.6	24190	1.632	4.34
	3.6	7.7	75/63	100.7	15550	10680	1.211	12.8	60	77.5	26290	1.363	5.65
			80/67	101.5	16850	11010	1.223	13.8	70	78.1	25720	1.521	4.95
			85/71	102.3	18260	11310	1.236	14.8	80	78.6	25140	1.681	4.38
	4.8	13.2	75/63	98.0	15550	10680	1.211	12.8	60	80.4	26820	1.383	5.68
			80/67	98.6	16850	11010	1.223	13.8	70	80.9	26210	1.544	4.97
			85/71	99.2	18260	11310	1.236	14.8	80	81.3	25610	1.707	4.39
100	2.4	3.6	75/63	115.6	14540	10160	1.337	10.9	<b>Tint = Operation Not Recommended</b> <b>Notes:</b> 1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution. 2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated. 3. See performance correction tables for operating conditions other than those listed. 4. Interpolation is permissible; extrapolation is not. 5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program 6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions. 7. Data is base on unit at full load operation.				
			80/67	116.6	15680	10460	1.355	11.6					
			85/71	117.7	16900	10730	1.381	12.2					
	3.6	7.7	75/63	110.4	14590	10180	1.325	11.0					
			80/67	111.1	15820	10520	1.328	11.9					
			85/71	111.9	17140	10830	1.338	12.8					
	4.8	13.2	75/63	107.8	14590	10180	1.325	11.0					
			80/67	108.3	15820	10520	1.328	11.9					
			85/71	108.9	17140	10830	1.338	12.8					
110	2.4	3.6	75/63	125.2	13610	9690	1.473	9.2					
			80/67	126.1	14670	9980	1.477	9.9					
			85/71	127.1	15800	10250	1.492	10.6					
	3.6	7.7	75/63	120.1	13640	9700	1.467	9.3					
			80/67	120.8	14770	10020	1.454	10.2					
			85/71	121.5	16000	10340	1.454	11.0					
	4.8	13.2	75/63	117.6	13640	9700	1.467	9.3					
			80/67	118.1	14770	10020	1.454	10.2					
				118.6	16000	10340	1.454	11.0					

## Capacity Tables Notes:

EWT = Entering Water Temperature (°F)

LWT = Leaving Water Temperature (°F)

COP = Coefficient of Performance

WPD = Water Pressure Drop (Ft. Hd)

TOT = Total Heat (Btu)

GPM = Gallons Per Minute

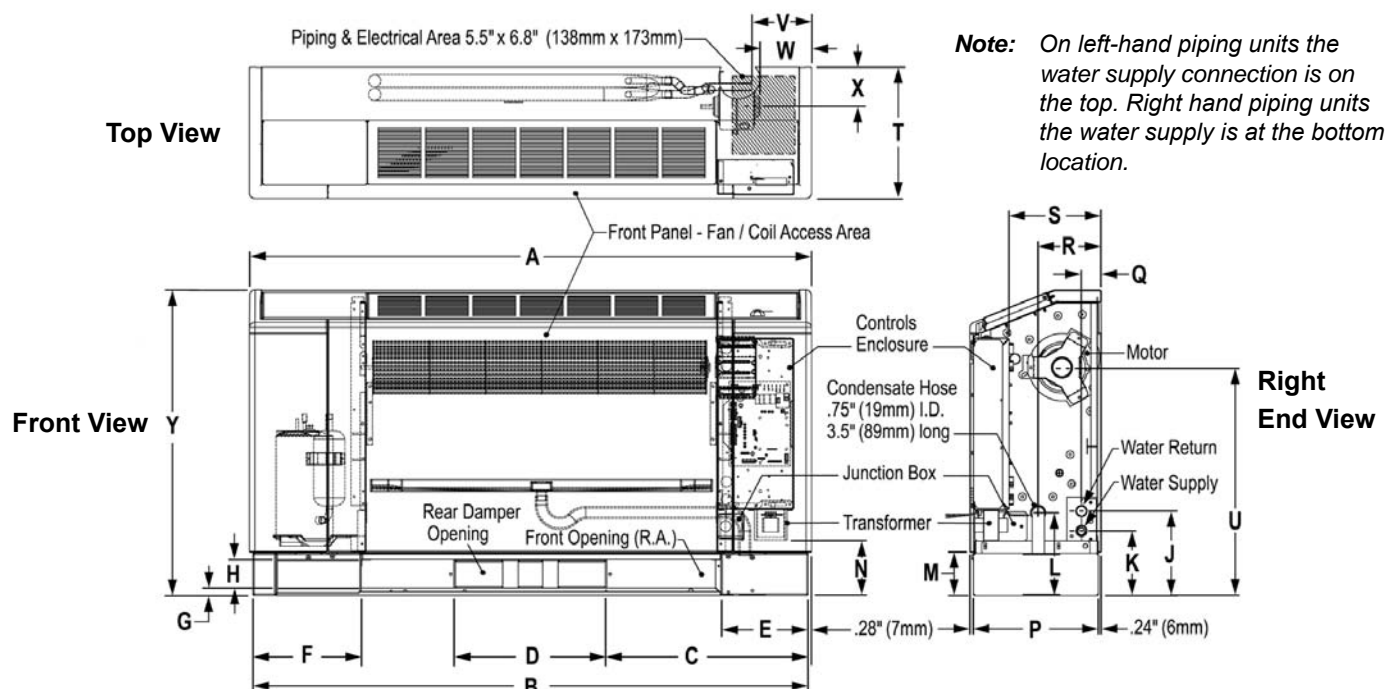
EAT = Entering Air Temperature (°F)

SEN = Sensible Heat (Btu)

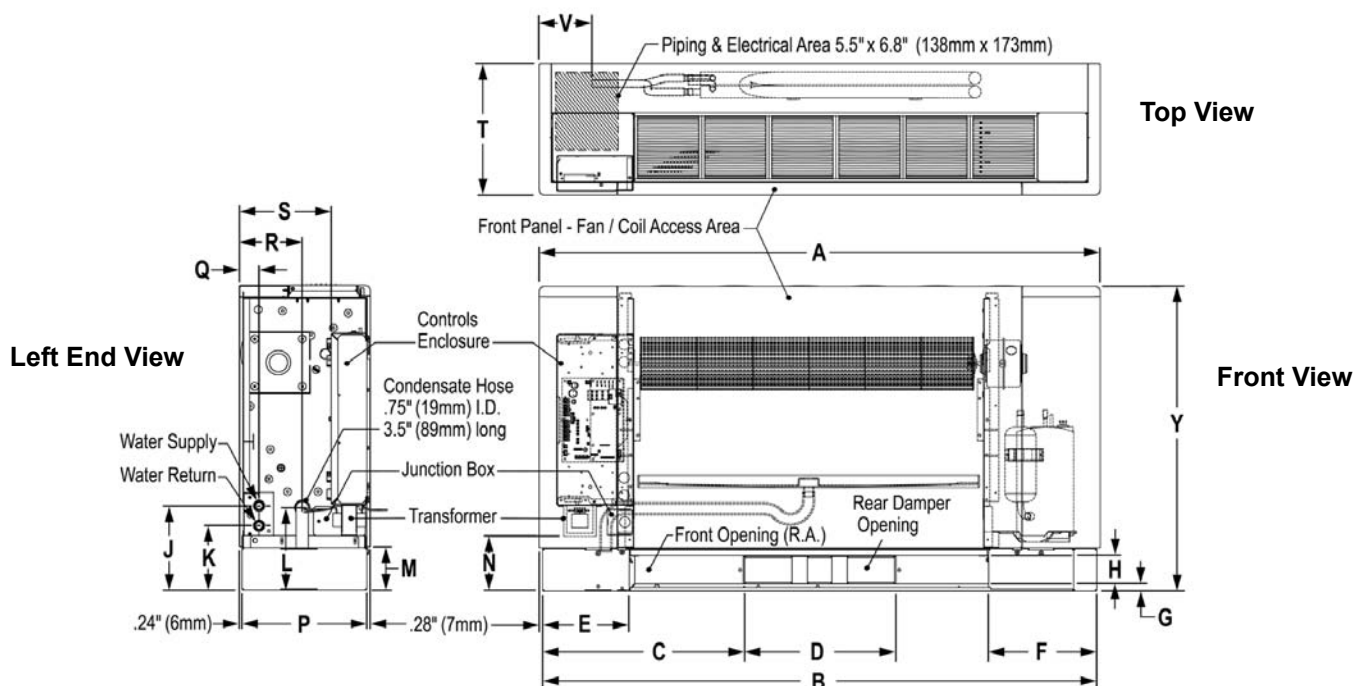
kW = Kilowatts

Performance data based on 208/1ph power supply.

# Slope Top Unit – High Sill, Right Hand Piping – Unit Size 007 - 012



# Flat Top Unit – High Sill, Left Hand Piping – Unit Size 007 - 012



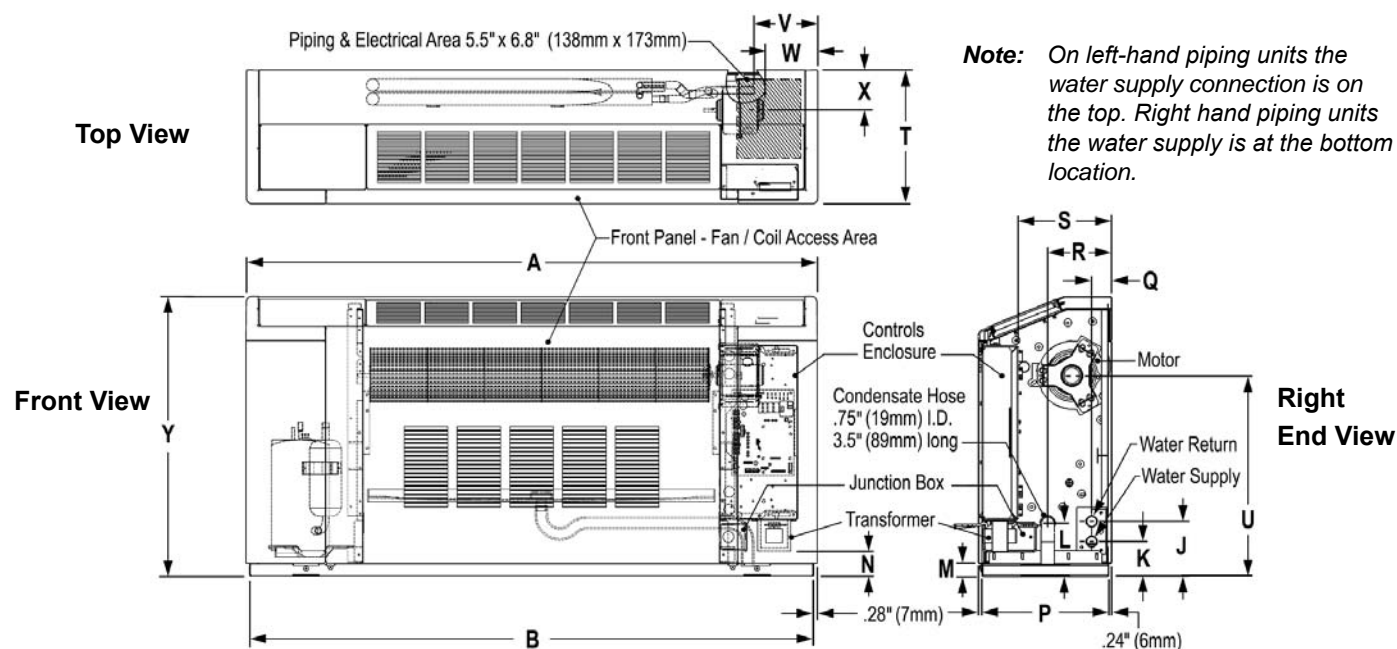
**Table 19: Dimensions**

Unit Size	A	B	C	D	E	F	G	H	J	K	L	M
007-012	46" (1168mm)	45 3/4" (1153mm)	16 1/2" (418mm)	12 1/2" (318mm)	7" (181mm)	8 3/4" (225mm)	0.6" (14mm)	2 1/4" (57mm)	6 7/8" (175mm)	51/5" (132mm)	6 3/4" (172mm)	3 1/2" (90mm)
	N	P	Q	R	S	T	U	V	W	X	Y	
	4 1/4" (108mm)	10 1/4" (41mm)	13 5/8" (41mm)	5 1/4" (134mm)	7 1/2" (192mm)	10 3/4" (273mm)	18 3/4" (476mm)	4 5/8" (118mm)	4 1/4" (108mm)	3 1/4" (83mm)	25" (635mm)	

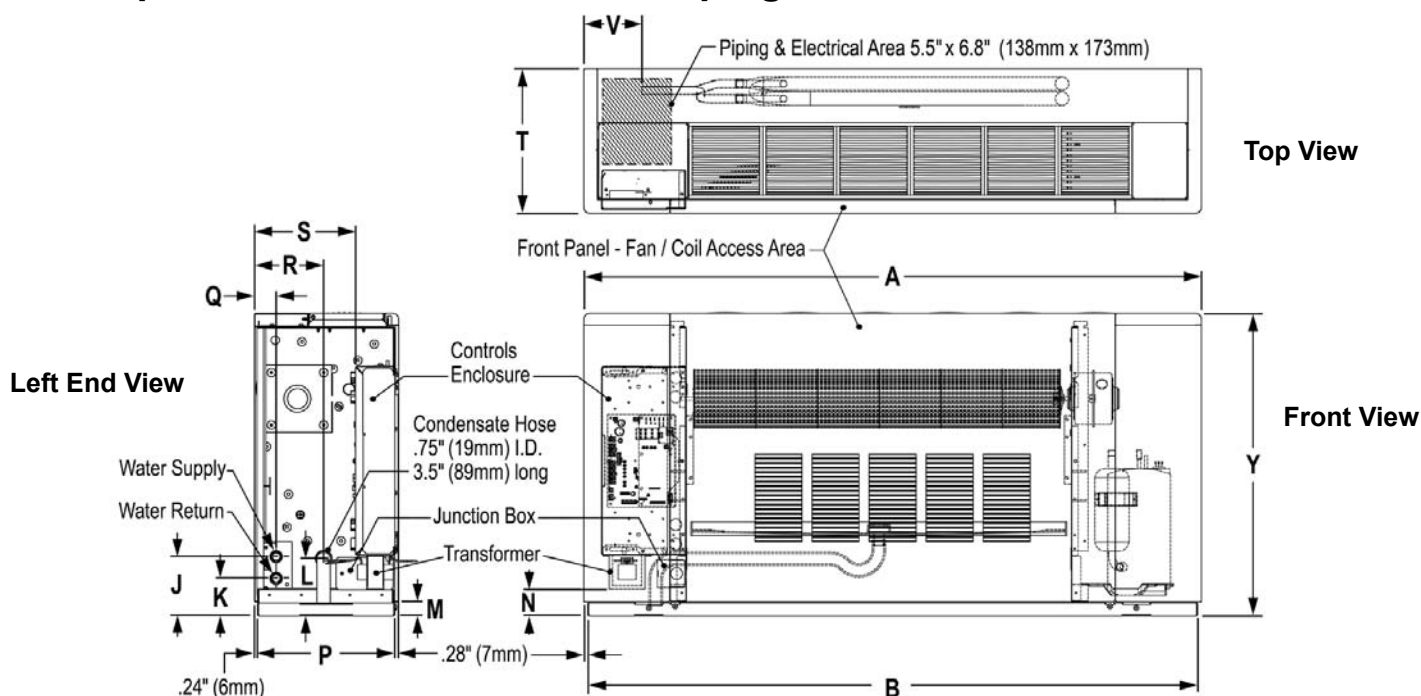
**Note:** Dimensions are approximate



# Slope Top Unit – Low Sill, Right Hand Piping – Unit Size 007 - 012



# Flat Top Unit – Low Sill, Left Hand Piping – Unit Size 007 - 012

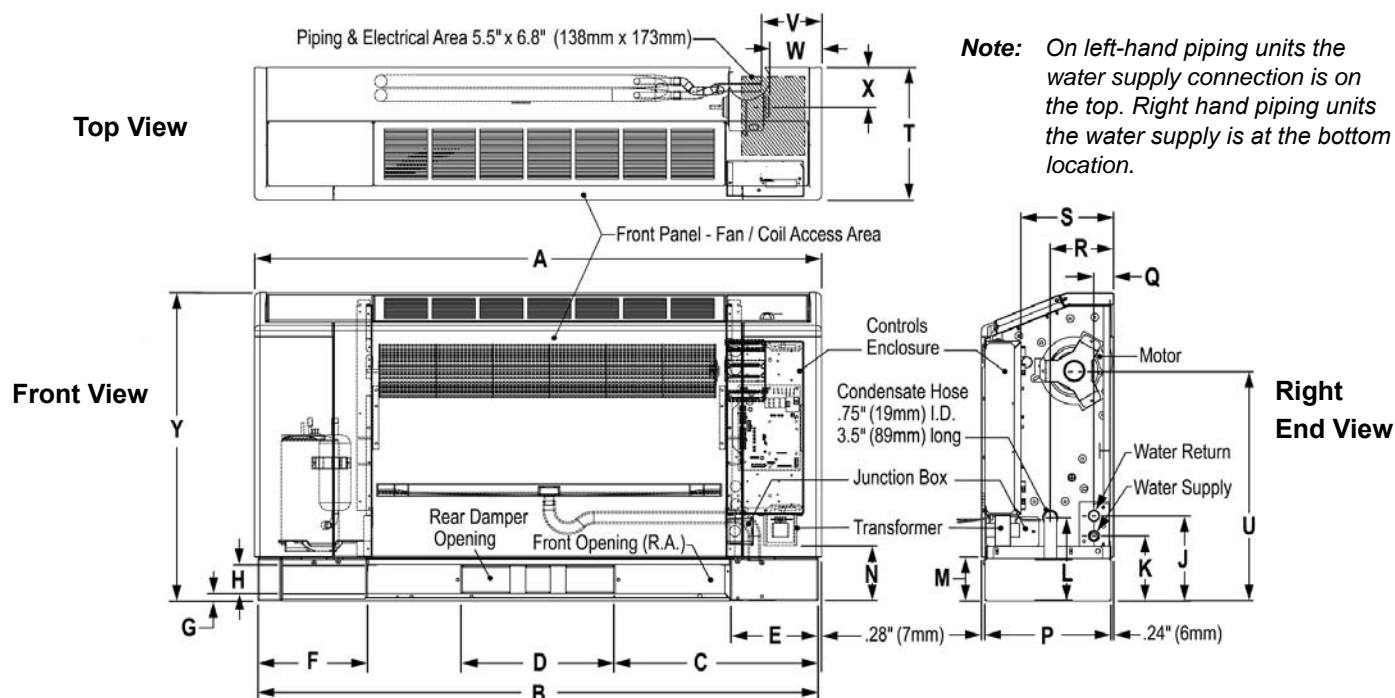


**Table 20: Dimensions**

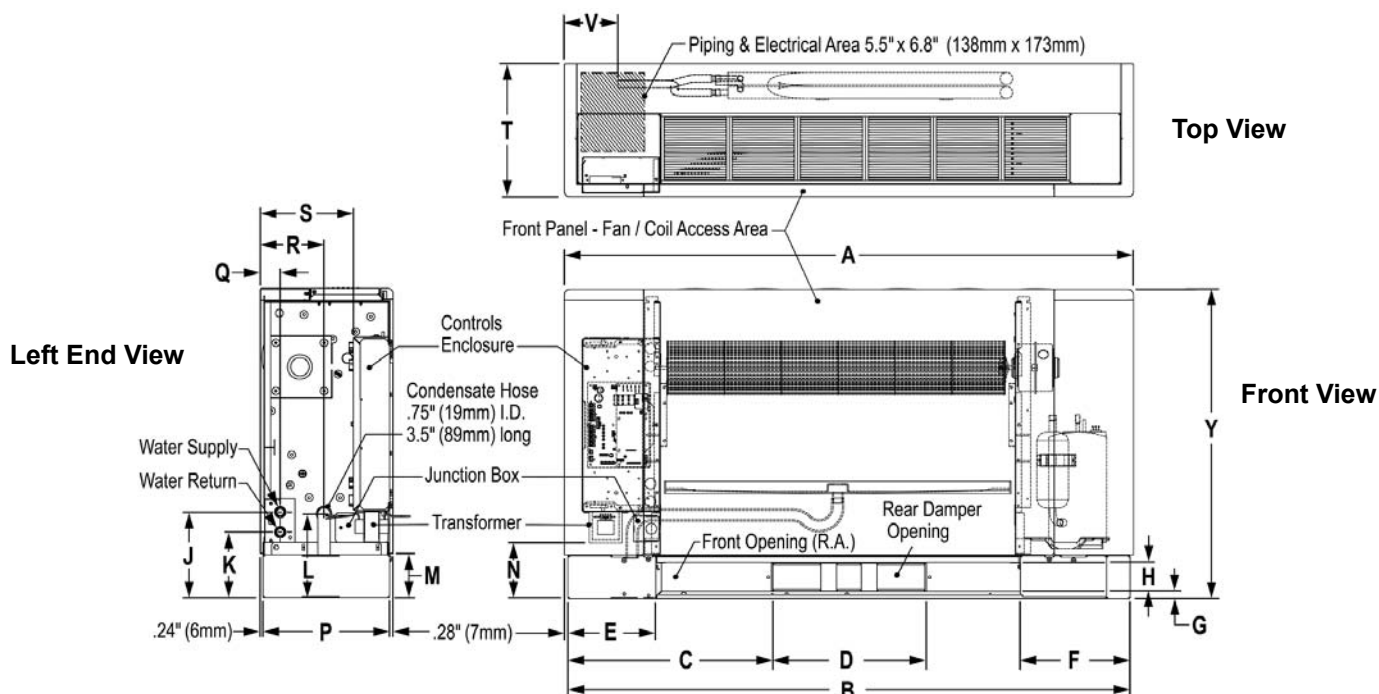
Unit Size	A	B	J	K	L	M	N	P	Q	R	S	T
007-012	46" (1168mm)	45 5/8" (1153mm)	4 5/8" (111mm)	2 3/4" (70mm)	4 1/4" (108mm)	1" (26mm)	1 3/4" (45mm)	10 1/4" (260mm)	1 3/5" (41mm)	5 1/5" (131mm)	7 1/2" (192mm)	10 3/4" (273mm)
	U	V	W	X	Y							
	16 1/4" (413mm)	4 5/8" (118mm)	4 1/4" (108mm)	3 1/4" (83mm)	22 1/2" (572mm)							

**Note:** Dimensions are approximate

# Slope Top Unit – High Sill, Right Hand Piping – Unit Size 015 - 018



# Flat Top Unit – High Sill, Left Hand Piping – Unit Size 015 - 018

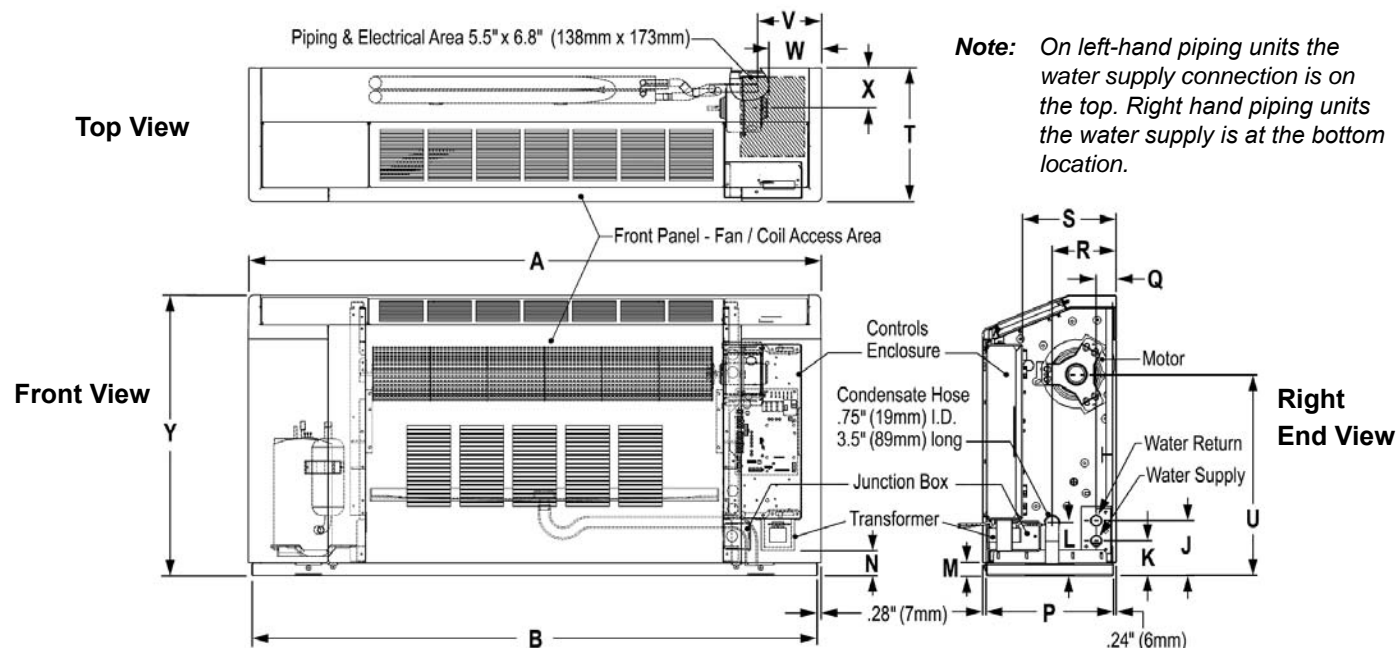


**Table 21: Dimensions**

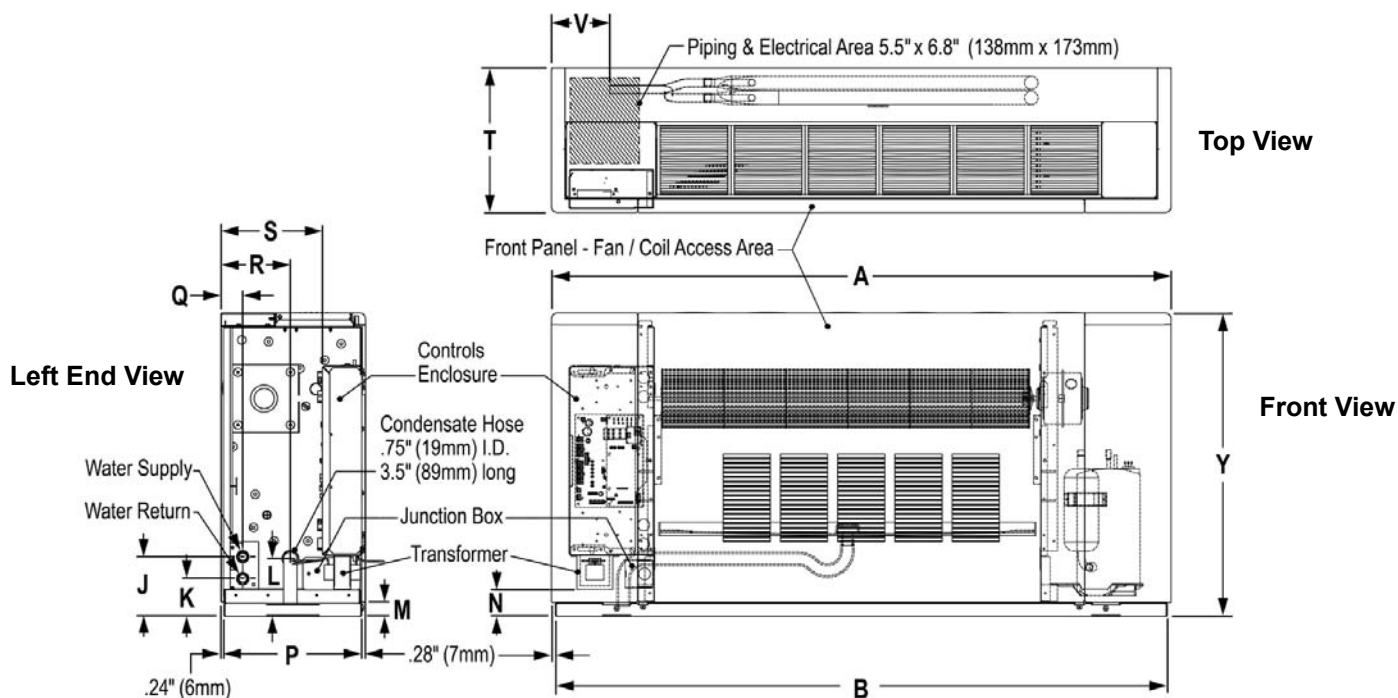
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M
015-018	54" (1372mm)	53½" (1356mm)	20½" (519mm)	12½" (318mm)	7" (181mm)	8⅞" (225mm)	0.6" (14mm)	2¼" (57mm)	6⅞" (175mm)	5⅞" (132mm)	6¼" (172mm)	3½" (90mm)
	N	P	Q	R	S	T	U	V	W	X	Y	
	4¼" (108mm)	10¼" (41mm)	1⅜" (41mm)	5¼" (134mm)	7½" (192mm)	10¾" (273mm)	18¾" (476mm)	4⅞" (118mm)	4¼" (108mm)	3¼" (83mm)	25" (635mm)	

Note: Dimensions are approximate

# Slope Top Unit – Low Sill, Right Hand Piping – Unit Size 015 - 018



# Flat Top Unit – Low Sill, Left Hand Piping – Unit Size 015 - 018



**Table 22: Dimensions**

Unit Size	A	B	J	K	L	M	N	P	Q	R	S	T
015-018	54" (1372mm)	53 3/8" (1356mm)	4 5/8" (111mm)	2 3/4" (70mm)	4 1/4" (108mm)	1" (26mm)	1 3/4" (45mm)	10 1/4" (260mm)	1 3/5" (41mm)	5 1/4" (134mm)	7 1/2" (192mm)	10 3/4" (273mm)
	U	V	W	X	Y							
	16 1/4" (413mm)	4 5/8" (118mm)	4 1/4" (108mm)	3 1/4" (83mm)	22 1/2" (572mm)							

**Note:** Dimensions are approximate

## Unit & Wall Mounted Thermostats - Standalone

These easy-to-operate comfort command centers bring you a complete range of deluxe features. Features that enable you to match temperature programming to your application, provide added convenience, and help save energy and money. All packed into an extra rugged, highly reliable design that will look and perform like new for years to come.

### Wall-Mounted Programmable Electronic Thermostat (P/N 668811301)

**1 Heat/1 Cool, Auto Changeover, Hardwired**



#### Features

- 7-Day, 5- 2-Day 5-1-1 Day Programmable
- Configurable
- Single-Stage Heat/Cool Systems
- Single-Stage Heat Pump Systems
- Large Display With Backlight
- Selectable Fahrenheit or Celsius
- SimpleSet™ Field Programming
- Status Indicator Light
- Relay Outputs (minimum voltage drop in thermostat)
- Remote Sensor Compatible

#### Ideally Suited for:

- Residential (New Construction/Replacement)
- Light Commercial

### Specifications–668811301

#### Electrical rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load

#### Temperature control range:

- 45°F to 90°F (7°C to 32°C), Accuracy:  $\pm 1^\circ\text{F}$  ( $\pm 0.5^\circ\text{C}$ )

#### System configurations:

- 1-stage heat, 1-stage cool, heat pump

#### Timing:

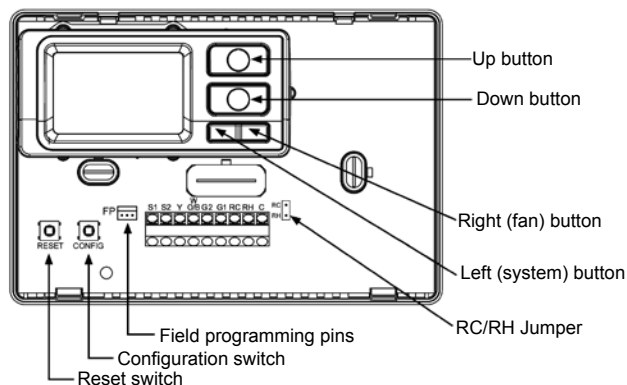
- Anti-short Cycle: 4 minutes, Backlight Operation

#### Terminations:

- S1, S2, Y, W/O/B, G2, G1, RC, RH, C

For detailed installation, operation and application refer to Operation & Application Guide LIA303

**Figure 11: Thermostat Parts Diagram - Part No. 668811301**



### Non-Programmable Electronic Thermostat (P/N 668811201)

**1 Heat/1 Cool, Auto Changeover, Fan Speed Control, Hardwired**



#### Features

- Configurable
- Single-Stage Heat/Cool Systems
- Single-Stage Heat Pump Systems
- Fan Speed Control
- Large Display With Backlight
- Selectable Fahrenheit or Celsius
- SimpleSet™ Field Programming
- Status Indicator Light
- Relay Outputs (minimum voltage drop in thermostat)
- Remote Sensor Compatible

#### Ideally Suited for:

- Residential (New Construction/Replacement)
- Light Commercial

### Specifications–668811201

#### Electrical rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load



### Temperature control range:

- 45°F to 90°F (7°C to 32°C) Accuracy:  $\pm 1^\circ\text{F}$  ( $\pm 0.5^\circ\text{C}$ )

### System configurations:

- 1-stage heat, 1-stage cool, heat pump

### Timing:

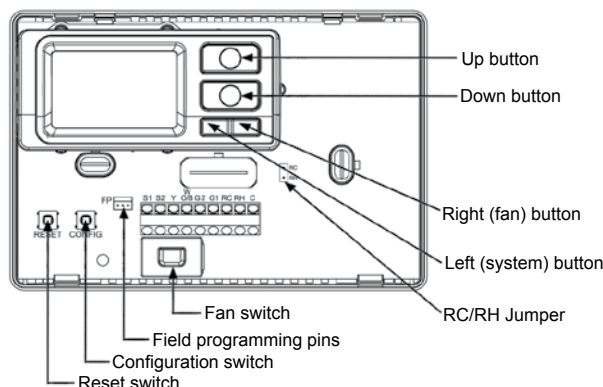
- Anti-short Cycle: 4 minutes, Backlight Operation

### Terminations:

- S1, S2, Y, W/O/B, G2, G1, RC, RH, C

For detailed installation, operation and application refer to Operation & Application Guide LIAF014

Figure 12: Thermostat Parts Diagram - Part No. 668811201



## Programmable Electronic Thermostat (P/N 668811101)

7-Day Programmable, Auto Changeover, Fan Speed Control, Hardwired



### Features

- 7-Day Programmable
- Single Stage Heat Pump/Non-Heat Pump Systems
- Backlit Display
- Single Stage Heat/Cool Systems
- Field Calibration
- Auto Changeover
- Button Lockout Function
- Two Speed Fan Control
- SimpleSet™ Programming
- Remote Temperature Sensor Capability
- Title 24 Compliant / No Batteries Required
- Relay Outputs (minimum voltage drop in thermostat)

### Ideally Suited for:

- Residential (New Construction/Replacement)
- Light Commercial

## Specifications–668811101

### Electrical rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load

### Temperature control range:

- 45°F to 90°F (7°C to 32°C), Accuracy:  $\pm 1^\circ\text{F}$  ( $\pm 0.5^\circ\text{C}$ )

### System configurations:

- 1-stage heat, 1-stage cool, heat pump

### Timing:

- Anti-short Cycle: 5 minutes, Backlight Operation: 10 seconds

### Terminations:

- C, RH, RC, W, Y, B, O G1, G2, S1, S2

For detailed installation, operation and application refer to Operation & Application Guide LIAF015

## Non-Programmable Electronic Thermostat (P/N 668811001)

Non-Programmable, Auto Changeover, Fan Speed Control, Hardwired



### Features

- Single Stage Heat Pump/Non-Heat Pump Systems
- Backlit Display
- Single Stage Heat/Cool Systems
- Field Calibration
- Auto Changeover
- Button Lockout Function
- Two Speed Fan Control
- Remote Temperature Sensor Capability
- Title 24 Compliant / No Batteries Required
- Relay Outputs (minimum voltage drop in thermostat)

### Ideally Suited for:

- Residential (New Construction/Replacement)
- Light Commercial



## Specifications—668811001

### Electrical rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load

### Temperature control range:

- 45°F to 90°F (7°C to 32°C) Accuracy:  $\pm 1^\circ\text{F}$  ( $\pm 0.5^\circ\text{C}$ )

### System configurations:

- 1-stage heat, 1-stage cool, heat pump

### Timing:

- Anti-short Cycle: 5 minutes, Backlight Operation: 10 seconds

### Terminations:

- C, RH, RC, W, Y, B, O G1, G2, S1, S2

For detailed installation, operation and application refer to Operation & Application Guide LIAF016.

## MicroTech III Water Source Heat Pump Room Temperature Sensors

(Kit P/N 669529101, 669529201, 669529001)

Room temperature sensors provide electronic sensing of room temperatures at wall locations. All sensor models feature a thermistor (10k $\Omega$ ), a green LED for unit status and tenant override button. Setpoint adjustment potentiometer, heat and fan mode switches are optional features.



- Sensor 669529101  
Sensor 669529201 Not Shown
- Set Point Adjustment
  - LED
  - Override feature

The fast, easy solution for temperature sensing problems.



**Sensor 667720401**  
Used with Standard Sensors  
668375301 & 668375401



**Sensor 669529001**

- Status LED
- Override Button

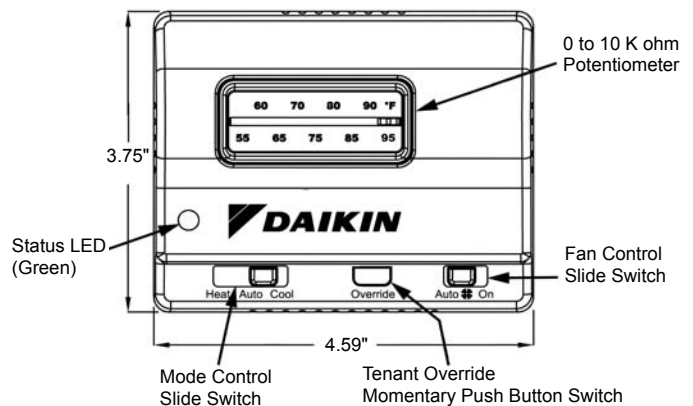
Feature	Sensor Part Numbers		
	669529001	669529101	669529201
Tenant Override Button	Yes	Yes	Yes
SPT Adj. Pot	No	Yes	Yes
Status LED	Yes	Yes	Yes
Fan and Mode Switches	No	<sup>1</sup> Yes	<sup>2</sup> Yes

Notes:

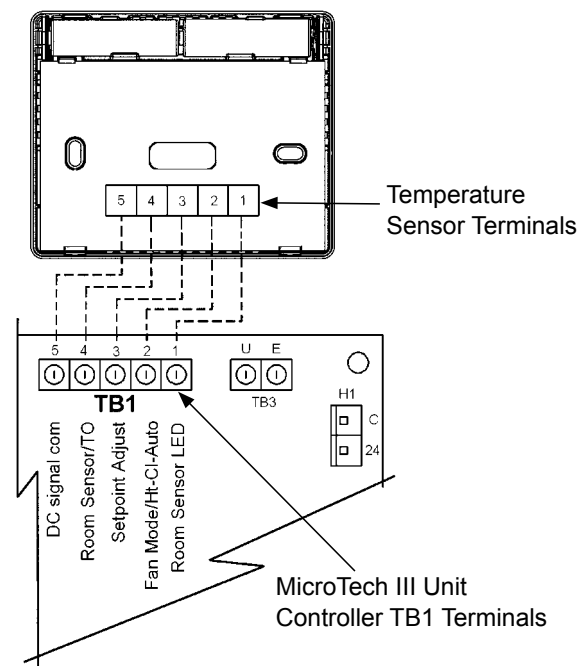
<sup>1</sup> 55° to 95°F (13° to 35°C)

<sup>2</sup> -3° to +3°F (-1.5° to +1.5°C)

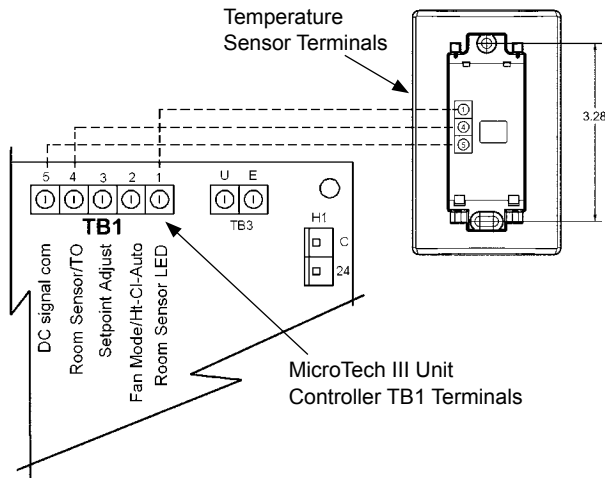
**Figure 13: Room Temperature Sensor User Interface**



**Figure 14: Optional Water Source Heat Pump Room Temperature Sensor 669529101 & 669529201 Wiring**



**Figure 15: Optional Water Source Heat Pump Room Temperature Sensor 669529001 Wiring**



## Wireless Temperature Control (T9000)

The T9000 Wireless Temperature Control is designed to provide precision temperature control without the installation labor and expense of wiring.

Powered by AA batteries

Mounts in any suitable location that will provide good temperature control.

Large LCD display provides the user with current room temperature, set point temperature, time, program interval, and other system status information.

For detailed installation, operation refer to Operation & Maintenance Bulletin OM 897-x.



**Programmable**



**Non-programmable**

The second part of the T9000 system is called a Remote Control Node or "RCN". An RCN interfaces with specific desired HVAC equipment, and communicates with its thermostat using unlicensed 900 MHz, radio frequency energy. At the time of installation, the T9000 thermostat is linked to one or more RCN controls. The thermostat and RCN that have been linked will not interfere with, or be affected by, any other thermostat or RCN in adjacent rooms, apartments, or neighboring homes.

## Remote Control Node (RCN)

Used with the Wireless Temperature Control, the RCN interfaces with specific HVAC equipment, and communicates with its thermostat using unlicensed 900 MHz, radio frequency energy. Contact your local Daikin Representative for details.



## Supply and Return Water Hoses

Available as fire rated construction in lengths of 9", 12", 18" or 24". Fire rated hoses have a synthetic polymer core with an outer rated covering of stainless steel. Fittings are steel. Assembly is "fire rated" and tested according to UL 94 with a VO rating and ASTM 84. Each hose has MPT connections. Fire rated hoses have a swivel connection at one end. Hoses are available in 3/4" (19 mm) to match the FPT fittings on the unit.



## Combination Balancing and Shutoff Valves

Constructed of brass and rated at 400 psig (2758 kPa) maximum working pressure. Valves have a built-in adjustable memory stop to eliminate rebalancing. Valves have FPT connections on both ends for connection to the water hose and to the field piping.



## 2-Way Motorized Valve

Used for variable pumping applications, the valve is wired in the compressor circuit and piped in the return water line from the unit.



A motorized valve relay and control valve assembly includes a relay, valve and wire harness. The valve opens when the compressor is turned on and closes when the compressor is off. The valve is rated for 300 psig (2068 kPa).

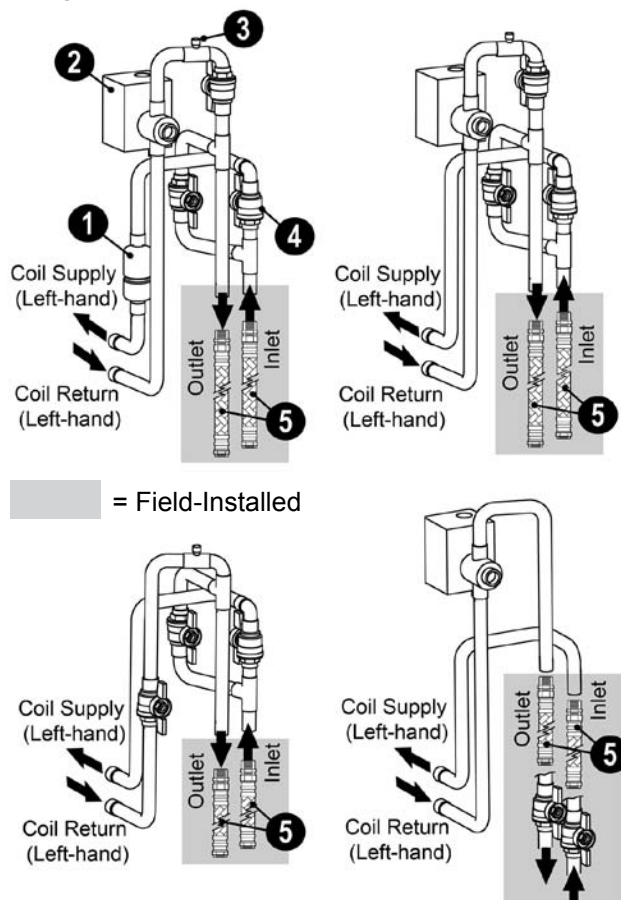
A multiple unit control panel allows a single wall-mounted thermostat to control up to three units in a common space.

An auxiliary relay controls optional devices when the fan is operating. The relay has SPDT contacts.

## Piping Package (Options)

Piping packages can be ordered as a factory-installed option. Motorized valves can be ordered as a field-installed accessory.

**Figure 16: Typical Left Hand Piping Package Configurations**

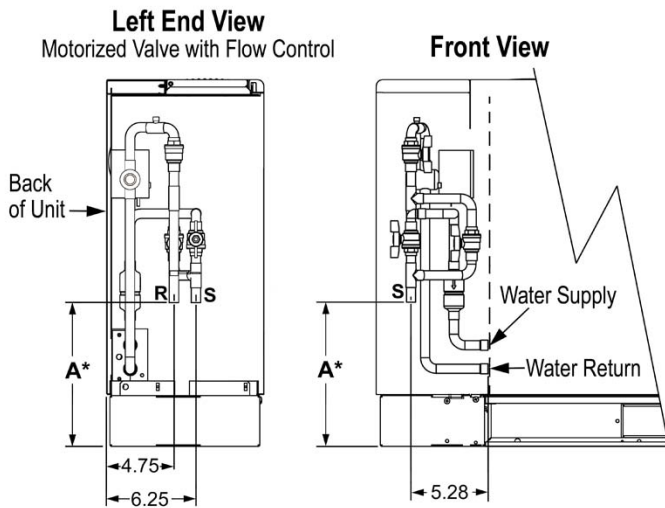


1. Measureflow Device
2. 2-Way Motorized Isolation Valve
3. Air Bleed Vent
4. Supply, Return and Bypass Hand Valve
5. Inlet-Outlet Flexible Hoses (Field-installed)

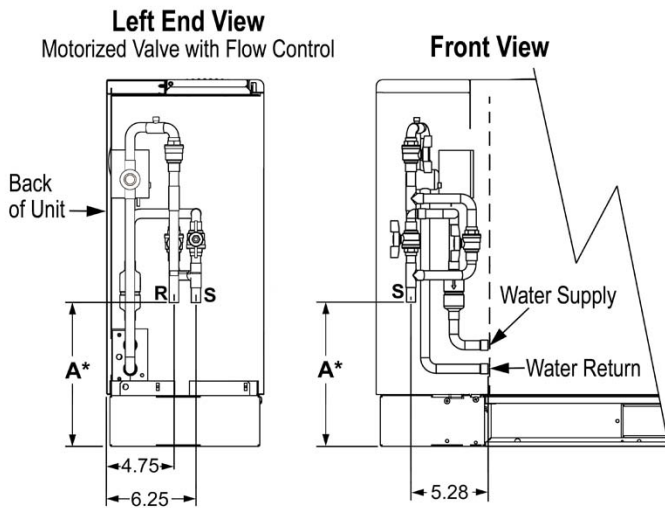
**Note:** On left-hand piping units the water supply connection is on the top. Right hand piping units the water supply is at the bottom location.

## Piping Packages Dimensions – Left Hand

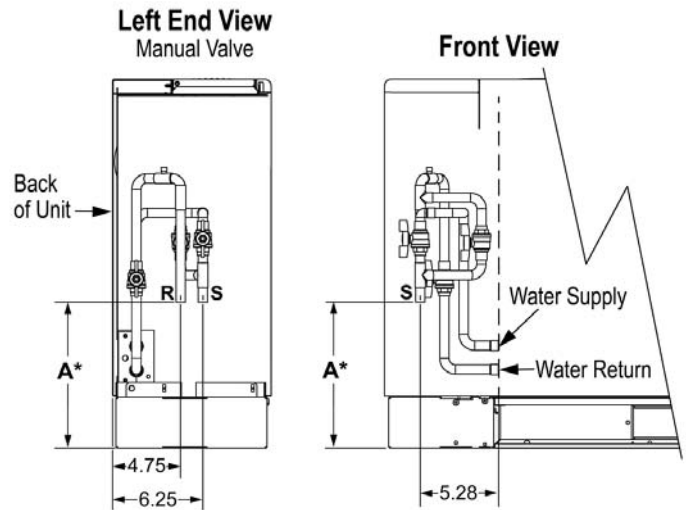
**Figure 17: Left-Hand, Motorized Valve with Flow Control**



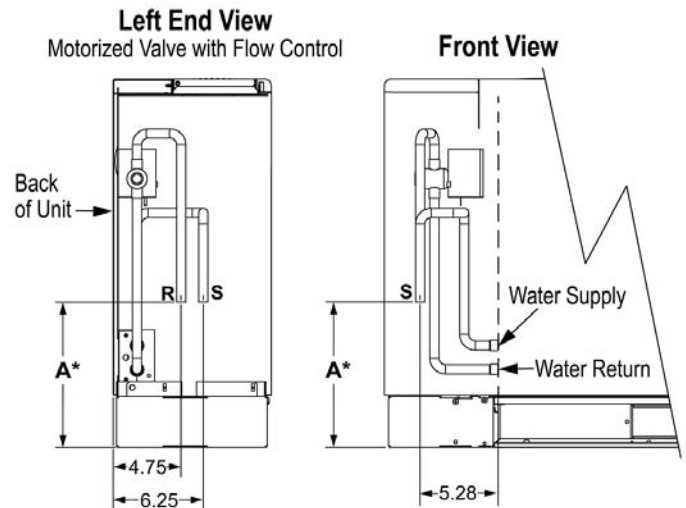
**Figure 18: Left-Hand, Motorized Valve with Flow Control**



**Figure 19: Left-Hand, Manual Valve**



**Figure 20: Left-Hand, Motorized Valve with Flow Control**

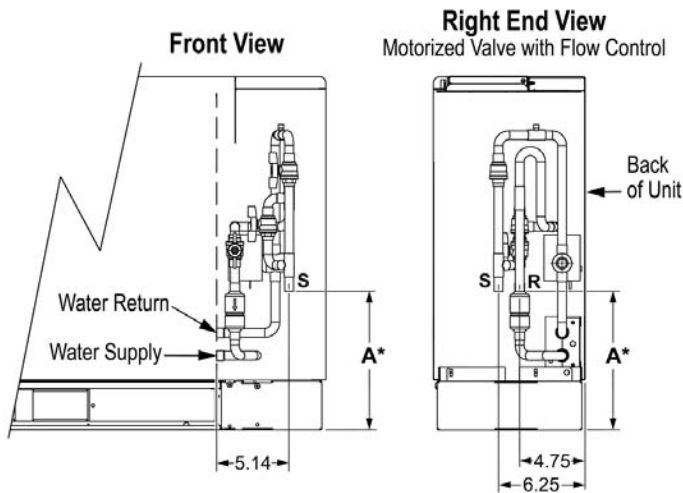


Dimension "A"	
High Sill	Low Sill
9.81"	7.31"

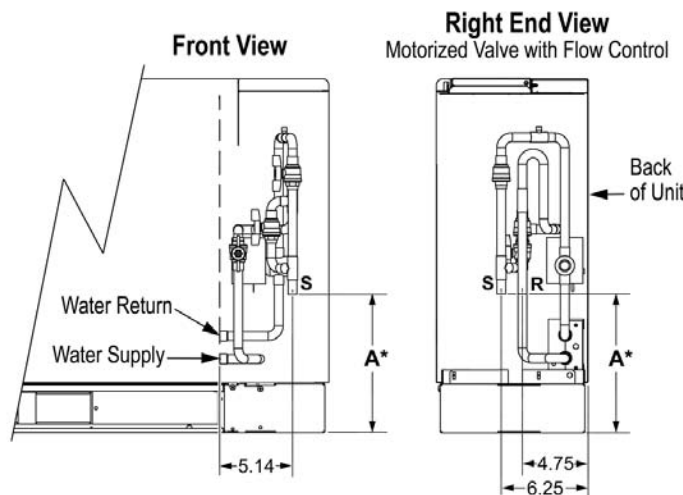


## Piping Packages Dimensions – Right Hand

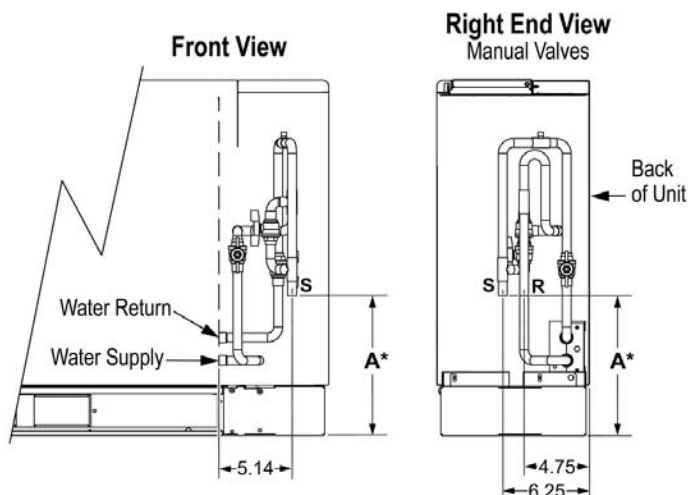
**Figure 21: Right-Hand, Motorized Valve with Flow Control**



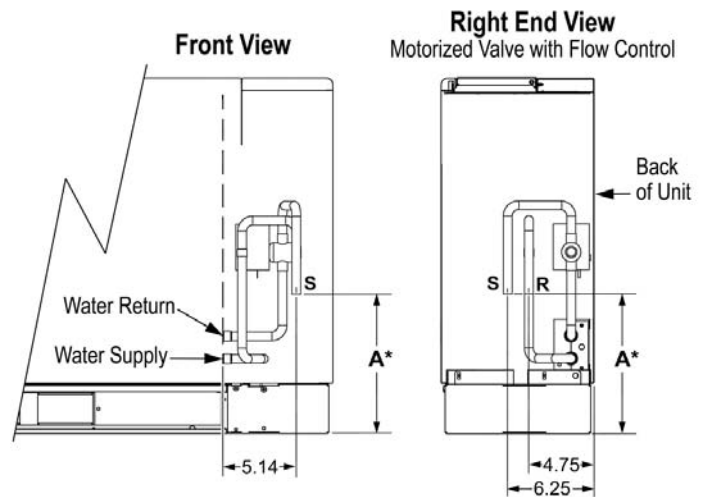
**Figure 22: Right-Hand, Motorized Valve with Flow Control**



**Figure 23: Right-Hand, Manual Valve**



**Figure 24: Right-Hand, Motorized Valve with Flow Control**



Dimension "A"	
High Sill	Low Sill
9.81"	7.31"

## Outdoor Air Dampers

Manually operated or Motorized outside air damper assemblies are available to order as field-installed accessories and provide ventilation air.

**Figure 25: Manual Outdoor Air Damper**

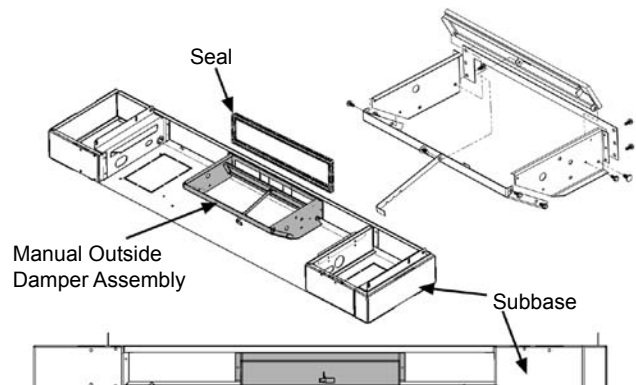
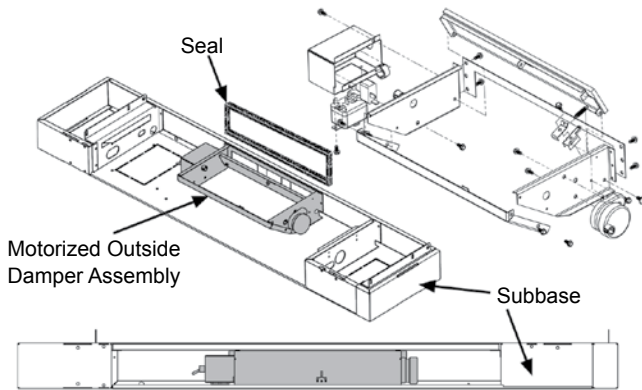


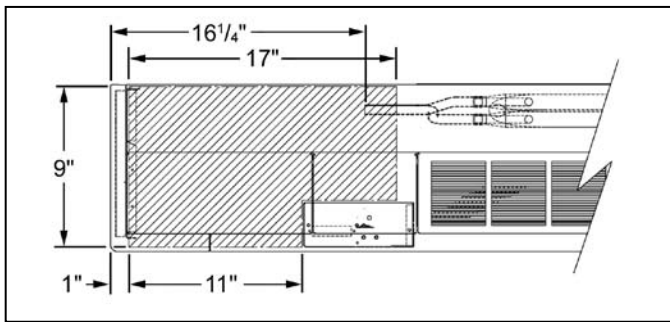


Figure 26: Motorized Outdoor Air Damper



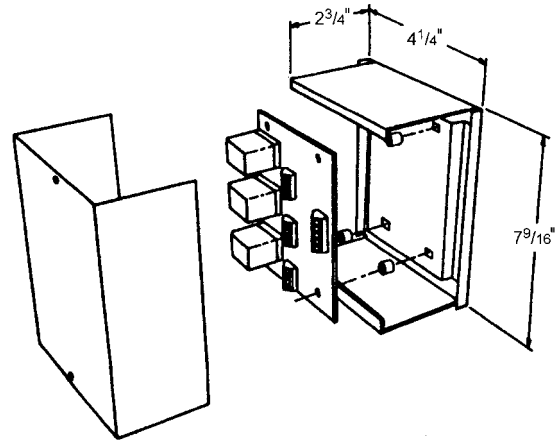
## Extended End Pocket (Option)

Optional extended cabinet end pocket for high sill units, provides 11" of additional area inside the left or right end pocket for piping or a field-installed pump.



## Multiple Unit Control Panel (MUCP)

Figure 27: Multiple Unit Control Panel and Board



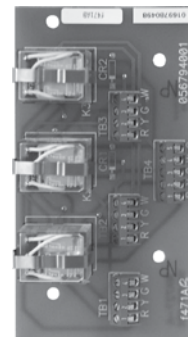
The Multiple Unit Control Panel (MUCP) is an accessory used when up to 3-units are controlled from a single thermostat. Console units must have the MUCP field-installed in a remote location, typically close to the units and convenient for service access.

**Note:** The MUCP control board does not fit inside the console unit control box.

A maximum of 2 boards may be used together if up to 6-units must be connected and controlled from a single thermostat.

**Note:** Multi-speed operation is only available with the optional unit-mounted fan speed switch.

Figure 28: Multiple Unit Control Panel Circuit Board



The multiple unit control board provides the components necessary to protect the MicroTech III unit controller from electrical damage that may occur when using standard off-the-shelf relays.

This version of the board uses VAC relays and should not be used in combination with any other accessories or equipment that require VDC connections to the "G", "W1", or "Y1" terminals.

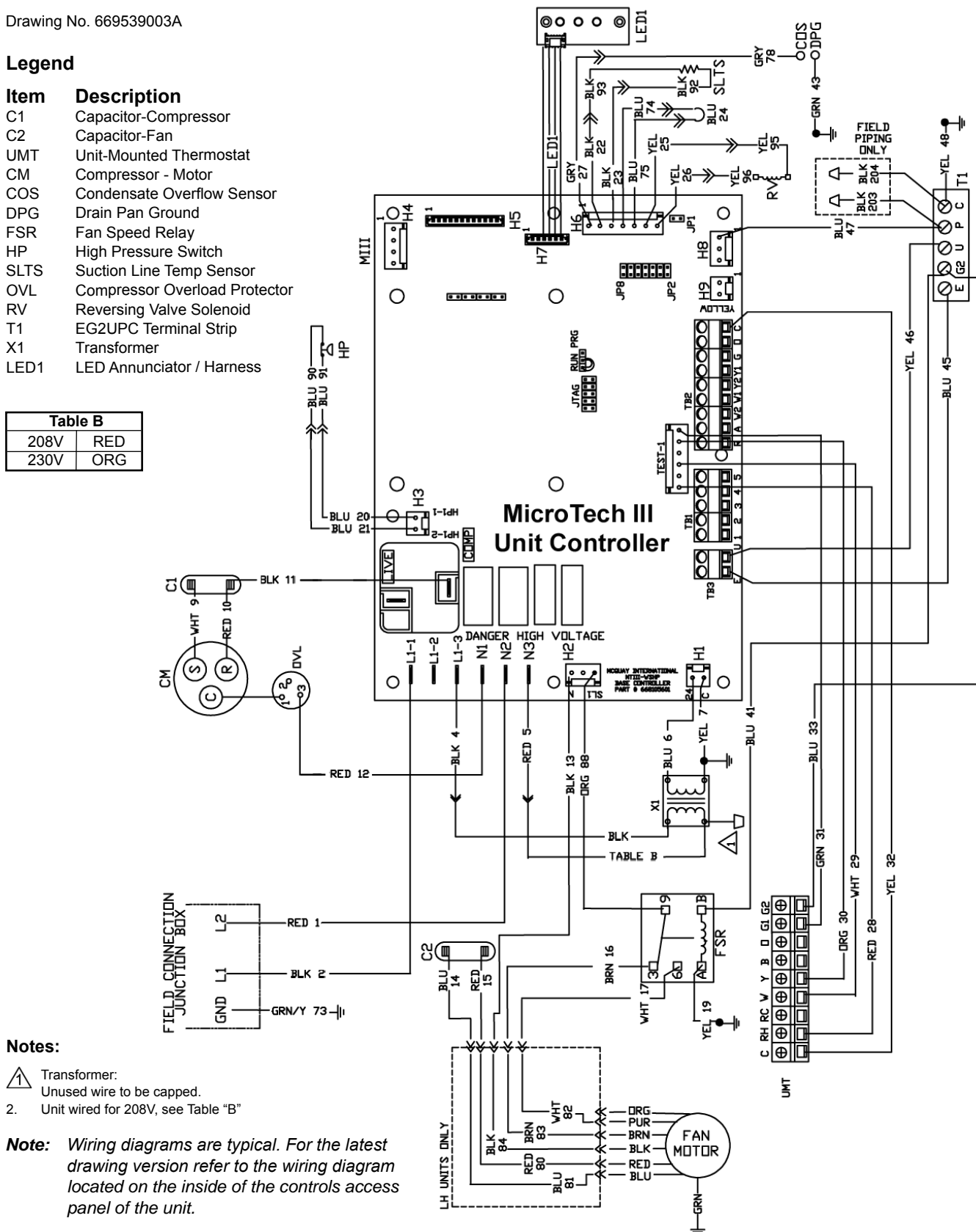
# Typical MicroTech III Unit Controller for Sizes 007-015 – 208/230/60Hz/1-Phase

Drawing No. 669539003A

## Legend

Item	Description
C1	Capacitor-Compressor
C2	Capacitor-Fan
UMT	Unit-Mounted Thermostat
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DPG	Drain Pan Ground
FSR	Fan Speed Relay
HP	High Pressure Switch
SLTS	Suction Line Temp Sensor
OVL	Compressor Overload Protector
RV	Reversing Valve Solenoid
T1	EG2UPC Terminal Strip
X1	Transformer
LED1	LED Annunciator / Harness

Table B	
208V	RED
230V	ORG



## Notes:

- Transformer: Unused wire to be capped.
- Unit wired for 208V, see Table "B"

**Note:** Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.

Drawing No. 669539006A

Item	Description
------	-------------

C1	Capacitor-Compressor
C2	Capacitor-Fan
CC	Compressor Contactor
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DPG	Drain Pan Ground
FSR	Fan Speed Relay
HP	High Pressure Switch
R2	Relay - Electric Heat
IOEXP	I/O Expansion Board / Harness
LED2	LED Annunciator / Harness
SLTS	Suction Line Temp Sensor
OVL	Compressor Overload Protector
RV	Reversing Valve Solenoid
T1	EG2UCP Terminal Strip
X1	Transformer
LED1	LED Annunciator / Harness
FHS	Fan High Speed Relay
UMT	Unit-Mounted Thermostat
EWT	Entering Water Temp Sensor

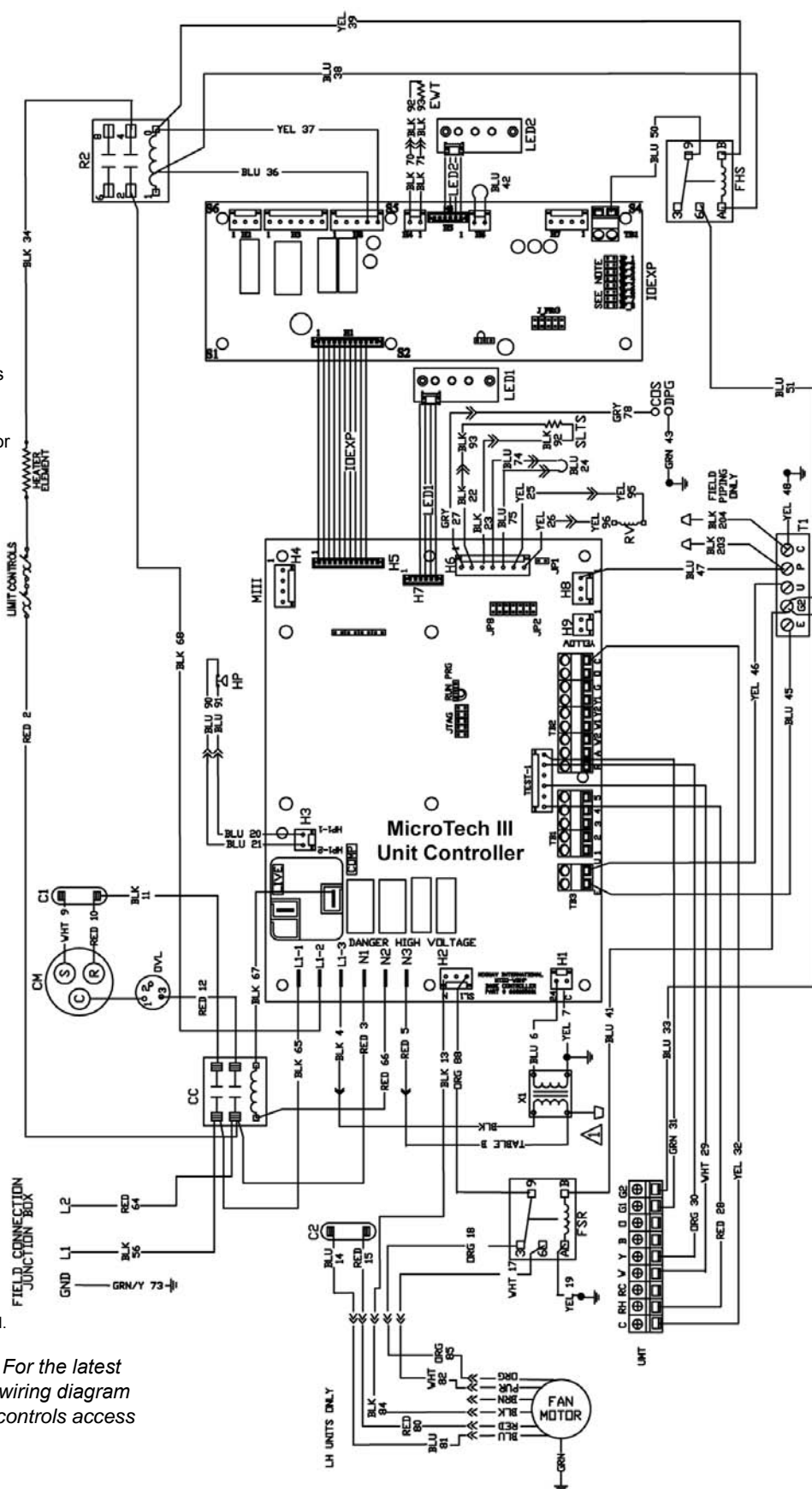
Table B

208V	RED
230V	ORG

**Notes:**

- Transformer:
1. Unused wire to be capped.
  2. Unit wired for 208V, see Table "B"
  3. I/O Expansion board jumper JP4 shorted.

**Note:** Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.

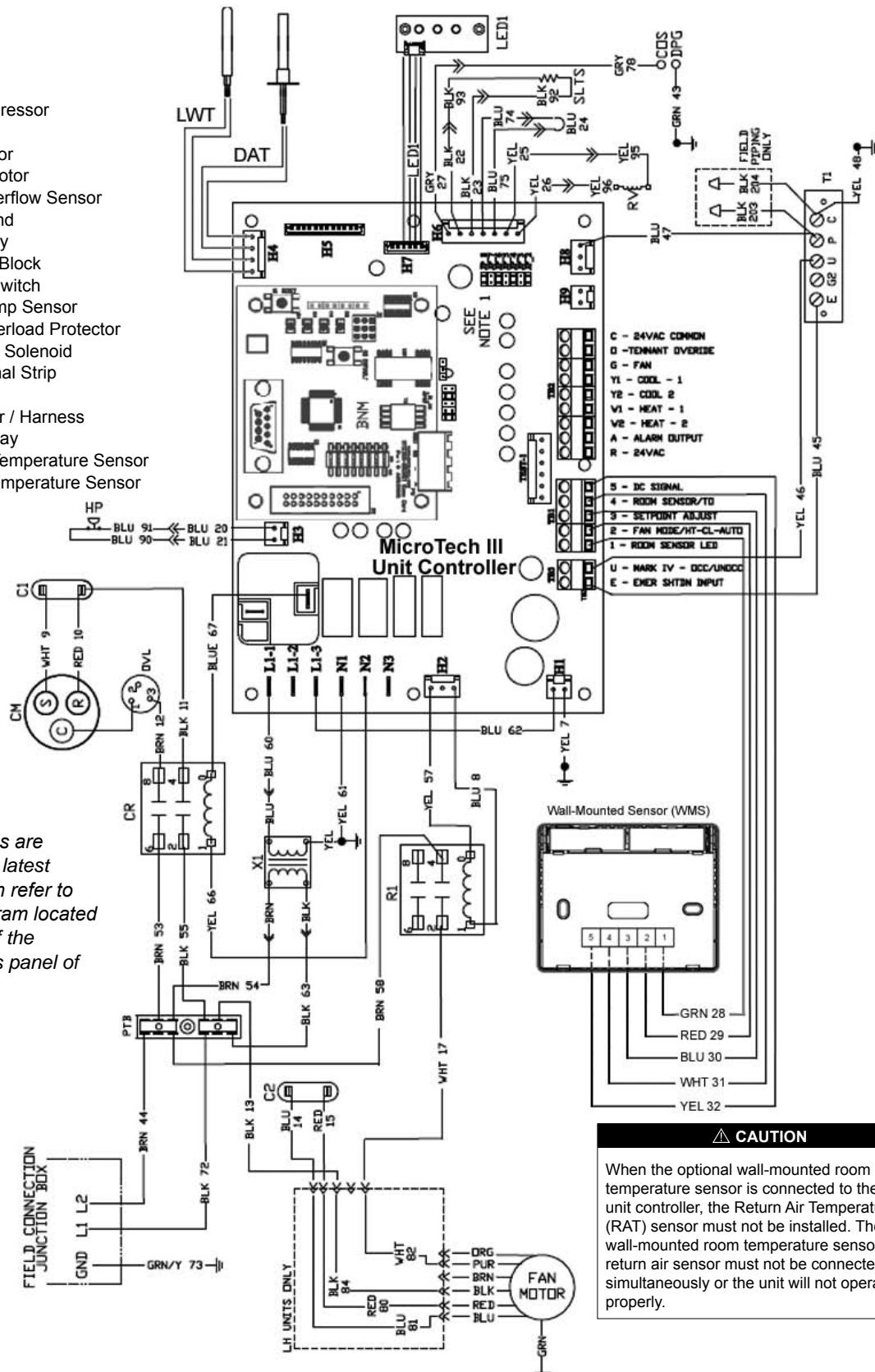


# Typical MicroTech III Unit Controller with Communication Module and Wall-Mounted Room Temperature Sensor – 265/277/60Hz/1-Phase

Drawing No. 669542001

## Legend

Item	Description
C1	Capacitor-Compressor
C2	Capacitor-Fan
R1	Relay - Fan Motor
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DPG	Drain Pan Ground
FSR	Fan Speed Relay
PTB	Power Terminal Block
HP	High Pressure Switch
SLTS	Suction Line Temp Sensor
OVL	Compressor Overload Protector
RV	Reversing Valve Solenoid
T1	EG2UCP Terminal Strip
X1	Transformer
LED1	LED Annunciator / Harness
CR	Compressor Relay
LWT	Leaving Water Temperature Sensor
DAT	Discharge Air Temperature Sensor





## General

Contractor shall furnish and install Water Source Heat Pump units as indicated on plans. Each unit shall be listed in the ARI directory of certified products, ISO rated and CETL or CE listed. Each unit shall be fully run tested at the factory. Each unit shall ship in its own corrugated box. The unit shall consist of a subbase for floor mounting, a cabinet front, a left and right end corner panel and a slide-out chassis for attachment to the back wall and floor mounting on the subbase. The chassis shall include the refrigeration system, fan assembly and all controls.

The unit shall be capable of being shipped as a,

**(choose one):**

- ☐ Complete unit including subbase, cabinet front, left and right end corner panels and chassis.
- ☐ Chassis only for spare unit or future installation.

## Cabinet and Chassis

The cabinet shall be fabricated from 18 or 20-gauge steel and include multiple holes/slots for attachment to the wall and floor. The cabinet sections shall be finished in Antique Ivory or Cupola White baked enamel. The subbase shall be finished in Oxford Brown or to match the cabinet color. The cabinet shall be insulated. The chassis shall house the refrigeration system, water piping, fan assembly and all controls. Panels shall provide access to the fan compartment and the compressor/control box compartment. The filter shall be a 1/2" (25mm) throwaway type with front removal from the subbase.

The chassis shall be fully insulated and incorporate a non-corrosive condensate pan. The drain hose shall have a formed condensate trap.

The cabinet shall be 10 3/4" (273mm) maximum depth and shall **(choose one):**

- ☐ Have a 22° slope top angle and an opening in the subbase for return air with a maximum height of 25" (635mm).
- ☐ Have a flat top and an opening in the subbase for return air with a maximum height of 25" (635mm).

**(Choose one):**

- ☐ The slope top cabinet shall incorporate an optional, adjustable discharge grille and thermostat cover with flush mounting to the front and sides of the cabinet. The discharge grille shall direct the air at an 11° angle from the vertical and be field reversible for a 33° discharge angle. The grille shall be constructed of painted steel or optional, fire retardant ABS polycarbonate or anodized aluminum bar grille. The left and right cabinet corners shall be Antique Ivory or Cupola White and be constructed of polycarbonate to match the discharge grilles and control door.

The flat top unit shall **(choose one):**

- ☐ Incorporate a one-piece stamped, painted steel grille. The grille shall be painted Oxford Brown or match the cabinet color.
- ☐ Incorporate no cabinet and a duct collar on the chassis for installation into a field supplied custom cabinet enclosure.

## Refrigerant Circuit

Each unit shall have a sealed refrigerant circuit including a compressor, capillary expansion tube(s), finned tube heat exchanger, reversing valve, water-to-refrigerant co-axial heat exchanger, high and low side access valves, and safety controls.

Compressor shall be rotary type with external vibration mounts and thermal overload protection. The finned tube coil shall be constructed of aluminum fins bonded to copper tubes. The coaxial heat exchanger shall be constructed of a copper inner tube and a steel outer tube and be U.L. listed. The heat exchanger shall be rated for 400 psig (2759 kPa) on the water side and 450 psig (3104 kPa) on the refrigerant side.

Safety controls shall include a low suction temperature (freezestat) switch and a high refrigerant pressure switch to lock out compressor operation. Unit shall be capable of being reset only by interrupting the power supply to the unit. Manual reset of the safety switch at the unit shall not be allowed. Unit shall be capable of starting at entering air of 40°F (5°C) and entering water at 70°F (21°C) with both air and water flow rates at the ARI rating conditions.

## Electrical

A control box with removable top cover shall be located on the right or left side of the chassis and shall contain controls for compressor, reversing valve and fan motor operation and a 50 VA transformer. The chassis shall have a 2" x 4" (51mm x mm) junction box mounted on the side to facilitate main power wiring and be capable of being located on the left or right side of the chassis. Unit shall be nameplated to accept time delay fuses or HACR circuit breaker for branch overcurrent protection of the power source.

## Fan and Motor Assembly

Unit shall have a direct-drive tangential fan wheel. The fan housing shall be insulated with closed-cell insulation to help attenuate noise. The motor shall be thermally protected, two-speed, PSC type and be connected to the chassis. The motor shall have a plug connection and be connected to the chassis with three screws for easy removal and service.



## Piping

The supply and return lines shall be 5/8" O.D. copper tubing and terminate away from the side of the chassis. The internally trapped condensate shall be a 3/4" (19mm) I.D. clear flexible vinyl tube protruding 14" (356mm) out of the chassis for connection at the floor or at the back wall. The supply, return and condensate tubing shall be capable of terminating at the left or right side of the chassis.

## Thermostat / Space Sensor Options

The thermostat shall be (**choose one**):

- ☐ Unit-mounted non-programmable w/LCD display
- ☐ Wall-mounted sensor
- ☐ Unit-mounted 7-day programmable w/LCD display
- ☐ Wall-mounted sensor w/status LED and night setback
- ☐ Wall-mounted non-programmable w/LCD display override
- ☐ Wall-mounted 7-day programmable w/LCD display
- ☐ wall-mounted sensor w/setpoint adjustment (55° F to 95°F)
- ☐ Wireless non-programmable
- ☐ Wall-mounted sensor w/setpoint adjustment (-3° F to +3°F)
- ☐ Wireless 7-day programmable

## Solid-State Control System

MicroTech III Control System - Unit shall have a microprocessor-based control system. The unit control logic shall provide heating and cooling operation as required by the wall thermostat set point. The control system shall provide the following for stand-alone operation:

1. The use of standard non-programmable or programmable wall thermostats.
2. Fan operation simultaneous with the compressor (fan interlock) regardless of thermostat logic.
3. Time delay compressor operation.
4. Compressor short cycle protection of a minimum between 300 to 360 seconds before restart is possible.
5. Random unit start-up after coming off on unoccupied mode or after initial start up.
6. Single grounded wire connection for activation of the unoccupied or unit shutdown modes.
7. Night setback temperature setpoint input signal from the wall thermostat.
8. Override signal from wall thermostat to override unoccupied mode for 2 hours.
9. Brownout protection to suspend unit operation if the supply voltage drops below 80% of normal.
10. Condensate overflow protection to suspend cooling or dehumid operation in an event of a full drain pan.

11. Suspended compressor operation upon activation of the refrigerant pressure switch(es).
12. Cooling operation activated for 60 seconds upon activation of the low suction temperature - defrost cycle.
13. Method of defeating compressor, reversing valve and fan time delays for fast service diagnostics.
14. Remote reset - Provides means to remotely reset automatic lock-outs generated by high/low pressure faults and/or low temperature faults.
15. Fault Retry clears faults the 1st two times they occur within a 24-hour period and triggers automatic lock-out on 3rd fault.

**MicroTech™ III Control with LonWorks communication module** – Unit shall have a microprocessor-based control system. The unit control logic shall communicate over a LONMARK communications network. The unit controller is factory programmed [LONMARK ® 3.4 certified Application Code the current standard for new applications] and tested with all the logic required to monitor and control heating and cooling operation. The controller sets the unit mode of operation, monitors water and air temperatures, and can communicate fault conditions via a LONMARK communications network. Units with the MicroTech III and LonWorks communication module include return air, discharge air and leaving water temperature sensors. Space temperature sensor options include a set-point adjustment, tenant override button, and the capability of substituting the return air sensor with a wall-mounted room sensor.

**Microtech III Control w/ BACnet Communication module** – Unit shall have a microprocessor-based control system. The unit control logic shall communicate over a BACnet communications network. The BACnet communication module shall incorporate an Atmel ARM7 Thumb series MCU and be capable of supporting a full MSTP BACnet implementation. The microprocessor shall also support SPI compatible communications with the MCU of the Microtech III controller. The physical interface to a BACnet BAS network shall be through an industry standard RS-485 transceiver capable of existing on an RS-485 network of up to 64 nodes. The unit controller is factory programmed and tested with all the logic required to monitor and control heating and cooling operation. The controller sets the unit mode of operation, monitors water and air temperatures, and can communicate fault conditions via a BACnet communications network. Units outfitted with Microtech III and BACnet Communication modules include return air, discharge air and leaving water temperature sensors. Space temperature sensor options include a set-point adjustment, tenant override button, and the capability of substituting the return air sensor with a wall-mounted room temperature sensor.

Each communicating unit controller performs the following unit operations:

- Enable heating and cooling to maintain space temperature set point at the room sensor
- Enable fan and compressor operation
- Monitor all safety controls
- Monitor discharge and return air temperature
- Monitor leaving water temperature
- Relay status of all vital unit functions

Unit mounted LED annunciators aid in diagnosing unit operation by indicating the water source heat pump operating mode and alarm conditions. If there are no current alarm conditions, the annunciator board will indicate normal unit operating mode. If an alarm condition exists, the Microtech III unit controller will send the fault condition to the LED annunciator, which will assist in troubleshooting the unit. Heat pumps with the Micro-Tech III Unit Controller with a LONWORKS Communication Module is designed to be linked with a centralized Building Automation System (BAS) through a LONMARK communications network for centralized scheduling and management of multiple heat pumps.

Wall-mounted room sensors are available to control the heating and cooling operation of each MicroTech III Water Source Heat Pump.

Available room sensors include:

- Room Sensor with timed override button and LED;
- Room temperature sensor with timed-override button and set point adjustment (55 to 95 deg F);
- Room sensor with timed-override button and set point adjustment (-3 to +3 deg F);
- Room sensor (no options, sensor only).

The control system type shall have an option of, **(choose one):**

- ☐ Unit-mounted non-programmable w/LCD display, Hi-Lo-auto fan speed control
- ☐ Unit-mounted 7-day programmable w/LCD display, Hi-Lo-auto fan speed control
- ☐ Wall-mounted non-programmable w/LCD display, Hi-Lo-auto fan speed control
- ☐ Wall-mounted 7-day programmable w/LCD display, Hi-Lo-auto fan speed control
- ☐ Wall-mounted space temperature sensor/setpoint adjustment (55° F to 95°F), auto- On fan speed control
- ☐ Wall-mounted space temperature sensor/setpoint adjustment (-3° F to +3°F), auto- On fan speed control
- ☐ Wall-mounted sensor, no setpoint adjustment
- ☐ Wall-mounted sensor, night setback override button and LED status light
- ☐ Wireless thermostat and receiver, non-programmable, Hi-Lo-auto fan speed control
- ☐ Wireless thermostat and receiver, 7-day programmable, Hi-Lo-auto fan speed control

## Optional Boilerless System Electric Heat

Unit shall have a factory mounted electric heater and control system. A unit-mounted entering water temperature thermostat shall lock out compressor heating operation at 58°F (15°C). On a call for heating, the electric heater shall be activated. When the entering water temperature rises, the unit shall resume normal compressor heating operation. An emergency heat switch shall provide heating only from the electric heater in the event of a compressor failure.

### Optional Outside Air Damper Kit

The damper is located in the back of the subbase for outside air intake and shall be operated manually from the subbase. Damper can be configured for manual adjustment or motorized control.

### Optional Plug Cord Kit

The chassis shall incorporate a plug cord for connection to a unit-mounted receptacle/fused disconnect switch box in the subbase under the chassis. The plug cord shall electrically mate to the receptacle.

### Optional Receptacle/Fused Disconnect Kit

The permanent portion of the cabinet shall have a receptacle and fused disconnect switch to facilitate main power electrical connection permitting chassis removal without disconnecting main power wiring.

### Optional Motorized Valve Package

The return water line shall have a motorized water valve. The valve shall operate in conjunction with compressor operation; valve opens before compressor is turned on. The valve shall have a maximum rating of 300 psig (2068 kPa).

## Field-Installed Accessories

### Optional Flexible Hoses

Each unit can be supplied with two steel fire-rated hoses for connection to unit and field piping. Hose assembly shall be rated at 500 psig (3494 kPa).

### Optional Ball Valves

Each unit can be supplied with two combination balancing and shutoff valves with adjustable memory stop.

### Optional Filter Kits

12-pk. filter kits available from selection software.

## Warranty

An optional 4-year extended compressor warranty covers the compressor for 5 years from the date at which the unit ships from the factory.

An optional 4-year extended refrigeration circuit warranty covers the entire refrigeration circuit and related components for 5 years.



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### ***Daikin Applied Training and Development***

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at [www.DaikinApplied.com](http://www.DaikinApplied.com) and click on Training, or call 540-248-9646 and ask for the Training Department.

### ***Warranty***

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. Refer to Form 933-430285Y. To find your local Daikin Applied representative, go to [www.DaikinApplied.com](http://www.DaikinApplied.com).

### ***Aftermarket Services***

To find your local parts office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-37PARTS (800-377-2787). To find your local service office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to [www.DaikinApplied.com](http://www.DaikinApplied.com).

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